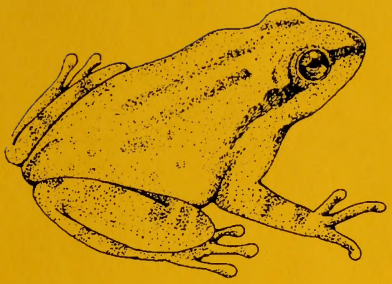

A PRELIMINARY SURVEY OF THE HERPETOFAUNA OF BRUNEAU RESOURCE AREA, BOISE DISTRICT

by

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FINAL REPORT

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Summary: Sixty-one sites in the northern portion of the Bruneau Resource Area, including both upland and wetland sites, were visited during the summer of 1992 and censused for herpetofauna using a variety of techniques. Two hundred fifty-four specimens, including 3 species of amphibians and 15 species of reptiles, were captured. This initial study, done during the sixth year of a drought, suggests that (i) National Wetland Inventory Maps have relatively little power in predicting likely sites for amphibians, (ii) many of the species are found more often than expected in association with certain habitat features, (iii) although we found no direct evidence of a negative impact of grazing on the herpetofauna, long-toed salamanders are likely to be negatively affected, and (iv) a number of springs exist that should be protected from usurpation for cattle and from trampling by cattle.

INTRODUCTION

The Boise district plans to prepare a Resource Management Plan (RMP) for the Bruneau Resource Area in the mid-1990's. To allow construction of an RMP that is sensitive to the wildlife of an area, it is important to know the occurrence and status of species present in the area. At the present time, however, little is known of the occurrence in the resource area of members of two classes of vertebrates, amphibians and reptiles.

Of particular concern are the amphibians. A number of researchers have argued that amphibian populations worldwide are undergoing a decline (e.g. Freda and Dunson 1986, Weygoldt 1989, Wake and Morowitz 1990 and Wyman 1990, Carey 1991). The hypothesized reasons for decline include: (i) global phenomena, either increased ultraviolet radiation (due to partial loss of the protective ozone layer) or climate change. (ii) pollution, in the form of pesticides or acid rain, the effects of which may be exacerbated by the relatively permeable skin of amphibians, (iii) loss of breeding habitat due to human impacts, or the fragmentation of habitat, leading to local extinctions without recolonization, and (iv) the introduction of exotic species, both fishes and amphibians, which prey upon larval forms (v) multiple stressors leading to compromised immune function and disease.

To provide information to allow sensitive planning and to contribute to our knowledge of amphibian population trends, the present survey of herpetofauna was undertaken. This survey involves only a portion of the Bruneau Resource Area (the part north of I-84) and will form the groundwork for a survey that will include the bulk of the Bruneau Resource Area. Also included in this report are results from a data base presently being assembled at Idaho State University that includes sites of collection of reptiles and amphibians presently held in museums throughout the U.S.

The objectives of this project were (1) To provide information, from censuses and from prior collections, on the presence and status of various species of reptiles and amphibians in the northern portion of the Bruneau Resource Area, (2) to provide an initial indication of the habitat variables important to each species, and (3) to give a preliminary indication of the reliability of using National Wetland Inventory maps to predict the presence of amphibians.

METHODS

A. Database of Museum Specimens.

Peterson at ISU has begun assembly of a database of known locations of reptiles and amphibians in Idaho. Letters were sent to the museums of over 100 College and Universities requesting records of specimens captured in Idaho. Letters were also sent to State and Federal Personnel soliciting sightings of herpetofauna. Records have been assembled according to county, and those for Elmore County, which includes survey area, were extracted.

B. Survey for Amphibians and Reptiles.

The accompanying LAND USE MAP, QUADRANGLE MAPS, and SPECIES MAPS show the locations and number of sites that were censused by the methods described below.

Wetland Surveys:
We visited a large proportion of those springs, streams, and reservoirs identified on a BLM land-use map of the area that are within reasonable hiking distance (2 km) of the nearest road. At each site, we scored the following factors surveyed for the presence of amphibian adults, larvae, and eggs by closely examining pools, dipnetting in promising areas, turning rocks, and digging in duff. We also scored each site for the following factors: (i) topography (canyon with rocky walls, hilly [rolling], or flat); (ii) grazing pressure based on visual inspection of the site (scored as none, light, moderate, or heavy); (iii) type of watercourse (spring, stream, or reservoir); (iv) presence of fish, based on sightings or habitat type (none likely, probable presence of a fish species, and known presence of one or more fish species); (v) wetlands designation SYSTEM (lacustrine, palustrine, or riverine), (vi) wetlands designation CLASS (emergent, forested, streambank, scrubshrub, unconsolidated bottom, unconsolidated shore); and (vii) wetlands designation REGIME (A = temporarily flooded, Ah = temporarily flooded - impounded, B = saturated, C = seasonally flooded, Ch = seasonally flooded - impounded; F = semipermanently flooded, Fh Semipermanently flooded - impounded, Hh = permanently flooded - impounded). Contingency table analysis was used to determine if the presence or absence of amphibian species was associated with the state of any of the above factors. Also examined was the elevational range at which each species was captured.

Drift Fences:
At seven sites, we erected a set of drift fences with traps, styled after those of Jones (1986). Sites were chosen generally to represent the habitat and elevational gradients in the study area. Each set consisted of two 50 ft. long pieces and one or two 25 ft. long pieces of galvanized flashing 20 " wide. Two of the pieces were placed in an upland area, and were placed at right angles to each other and separated at their closest point by about 50 feet. The shorter piece (or pieces) was (were) placed in proximity to a nearby stream. One edge of each piece of flashing was buried ca. 6 inches deep. Along the length of flashing, four inches was bent over at a right angle prior to burying to anchor the flashing. On each side of each end of each piece of flashing, cone traps were installed. Each was constructed of aluminum window screen and consisted of a 8 inch diameter tube 20 inches long, folded and secured at one end with clothes pins. Stapled into the other end was a cone of window screen with a 1 inch diameter hole. A shade constructed of ½" plywood covered each trap. Trap arrays were established between June 2 and June 22 and were checked at least every third day through July 15.

24-Minute Censuses.
At a number of sites, typically near drift fences or wetland sites, we conducted a walking census, looking for active reptiles. Each census consisted of walking slowly in a large square, walking each side for 6 minutes. Any reptiles sighted were identified and captured where appropriate (time so spent was not counted as part of the 6 minutes). We also recorded the dominant vegetation type of the site, the degree of grazing, the general topography, and the presence of rocks and rocky outcrops that could serve as shelters for reptiles.

Night Calls.
On several nights we visited a number of easily accessible wetland sites and listened for calls of frogs.

Road Running.
During our travels between sites, we occasionally encountered reptiles on the road. These

were recorded, as was (in most cases) information on surrounding habitat. On several occasions, we made an effort to drive extra miles at times traditionally best for sighting reptiles (early evening) but encountered no reptiles during these jaunts.

Miscellaneous Sightings.
While conducting wetland surveys or while walking to wetland or drift fence sites, we occasionally encountered reptiles. These were recorded, as was information on surrounding habitat.

Sample Collection and Deposition.
One individual of each species at each site was collected, fixed in formalin, and preserved in ethanol for deposition in Boise State University's Vertebrate Museum.

RESULTS

A total of 61 sites was visited during the summer, some of them multiple times. For an overview of the sites visited, see either the first map of the SPECIES MAPS, or the folded LAND USE MAP. The QUADRANGLE MAPS are marked with the areas surveyed, and are accompanied by lists of reptiles and amphibians captured. The SITE NOTES give a description of each site, the methods employed, species detected, and any recommendation regarding protection.

Museum Records

Table 1 shows the log from Idaho State University's effort to secure records of museum holding of reptiles and amphibians from Idaho. Thus far, 38 institutions have responded with 9,991 records. The bulk of these have been entered into a data base. Of those records in the data base, 87 records are from the area surveyed, and are listed (along with other Elmore County records) in Table 2 and depicted on the SPECIES MAPS. In every case where a museum record exists for one of our study sites, we also found the species in our survey. Only one species, Rana pipiens (the leopard frog), exists as a museum record from our study area, but was not found during our survey. One leopard frog was taken from "Mountain Home". It should be noted that analysis of a mail survey by Groves and Peterson (1992) indicated that this species is declining in Idaho. For all of Elmore County, only two other species exist as museum records but were not found during our study: Crotaphytus collaris (the collared lizard), which was taken near C.J. Strike dam, and Sonora semiannulata (the western ground snake), which was taken near Hammett.

Amphibians

A total of 38 potential wetland sites was visited and censused for the presence of amphibians. Some of these sites were complex, containing portions identified by several different wetland designators or portions differing in grazing intensity (because of exclosures) or portions consisting of different types of water course (reservoir and outflow or several discrete springs and a nearby stream). For the purposes of the analyses presented below, each separately designated segment is treated as a separate site. This will potentially lead to an inflation of Type I statistical error, because not all sites are spatially independent of one another.

However, it is felt that by not lumping the wetland designations or other characteristics, the best sensitivity can be gained in determining the utility of wetland designators as predictors of amphibian presence. Table 1 depicts the results from these contingency table analyses, giving the number of times each species was observed in each condition, and the expected number if there were no association between the environmental factor and the presence of the species.

Species captured. Three amphibian species were captured: Ambystoma macrodactylum (long-toed salamander), Bufo boreas (western toad), and Pseudacris [Hyla] regilla (pacific treefrog). As mentioned above, Rana pipiens is the only species that exists as a museum record and was not captured in our survey.

Potential Species Present. Examination of range maps in Nussbaum et al. leads to the suggestion that the following species are possible inhabitants of the survey area: Bufo woodhousei (Woodhouse's toad), Pseudacris triseriata (western chorus frog), Rana catesbeiana (bullfrog), Spea intermontana (Great Basin spadefoot), and Ascaphus truei (tailed frog).

Topography Canyons were the preferred habitat of all species captured. Treefrogs (P. regilla) and salamanders (A. macrodactylum) tended to be found more often in canyon habitats and less often in hilly habitats than expected. Toads (B. boreas) were found exclusively in canyon habitats.

Grazing The presence of neither the treefrog nor the salamander showed any trend with variation in grazing. The salamander showed a statistically significant dependence of presence on grazing, but was found more often than expected both in heavily grazed areas and where there was no grazing. In summary, none of the species was shown to be strongly affected by grazing.

Water course Salamanders were found both in springs and streams, but not in reservoirs. Toads were found primarily in streams, and treefrogs tended to be found in reservoirs and streams.

Fish Toads and treefrogs appeared unaffected by the presence of fish, and salamanders had a weak negative association with fish.

Wetland System Salamanders were found only in palustrine systems, toads were found in all three systems, and treefrogs were found more often than expected in both palustrine and lacustrine systems.

Wetland Class None of the species showed any positive or negative associations with any of the classes.

Wetland Regime. Surprisingly, neither salamanders nor toads showed any positive association with any of the regimes. Treefrogs showed a weak trend, being found somewhat more often than expected in permanently flooded situations (e.g. reservoirs with water) and less in B:saturated habitats.

Elevation. All three species were found over the majority of the elevational range surveyed (Fig.

Figure 1. Elevations of sites.

1), which is not surprising given that sites were only surveyed over a 1000 m (3300 ft) range (ca. 760 m [2500 ft] to ca. 1700 m [5500 ft.]).

Reptiles.

Species Captured. Fifteen species of reptiles were captured during this survey, three of which are apparently first recorded captures for Elmore County. Seven were lizards: Cnemidophorus tigris (western whiptail lizard), Eumeces skiltonianus (western skink, new county record), Gambelia wislizenii (longnose leopard lizard), Phynosoma platyrhinos (desert horned lizard), Sceloporus graciosus (sagebrush lizard), Sceloporus occidentalis (western fence lizard), and Uta stansburiana (side-blotched lizard). Eight species were snakes: Charina bottae (rubber boa, new county record), Coluber constrictor (racer), Crotalis viridis (western rattlesnake), Hypsiglena torquata (night snake), Masticophis taeniatus (striped whipsnake), Pituophis catenifer (gopher snake), Rhinochelius lecontei (longnose snake), and Thamnophis elegans (western terrestrial garter snake, new county record).

Species Potentially Present. Examination of Nussbaum et al. (1983) indicates that very few species were potentially in our study area but not captured by us: as noted above Sonora semiannulata (western ground snake) is historically in the area. Also potentially in this area are Thamnophis sirtalis (common garter snake) and Phrynosoma douglasii (short-horned lizard).

For the six reptile species that were captured at 5 or more sites, I performed a contingency table analysis to determine whether presence of these species is associated with various environmental parameters. A G-test was used to determine if these associations were statistically significant. Much caution should be exercised when interpreting of these results for the following reasons: (i) The sites chosen were not randomly placed, but often were opportunistic sightings such as road kills. This may introduce bias into the analysis. (ii) These results are purely correlative, and therefore can only be used to suggest, not prove, causative relationships. (iii). For several sites we failed to note environmental variables; this may lead to bias in the analysis. (iv) The sample sizes for some species are quite small, making it difficult to establish anything but the most striking of trends.

Upland vs. Wetland.
Gopher snakes tend very strongly to be found in upland areas, which may result from our finding many of these as road kills (roads are more typically in upland areas). Rattlesnakes showed a similar trend, probably for the same reason. Side-blotched lizards show a trend in the same direction. Fence lizards showed a modest trend toward being found in wetland areas; these lizards were often found on trees or downed wood in riparian areas. Garter snakes, which are the most aquatic of the reptile species studied, tended, as we would predict, to be found in wetland areas.

Vegetation
Racers and garter snakes were found more often in habitat with mixed shrubs and willows and less in sagebrush habitat than expected. Rattlesnakes and gopher snakes tended to be found in mixed shrub habitat. Fence lizards were found more in willows.

Topography
Gopher snakes were found more often in flat areas. All other species, except sagebrush lizards, were found more often than expected in canyon or hilly habitats.

Presence of rocky outcrops.
Rattlesnakes, garter snakes, sagebrush lizards, and fence lizards were invariably found in areas with rocky outcrops.

Grazing
Racers were the only species that showed a significant association with grazing, although the pattern is not clear cut. They were found more often than expected in areas with no grazing and in areas with heavy grazing, a result similar to that seen for long-toed salamanders.

Rare species
Leopard lizards, horned lizards, and longnose snakes were found only in (and whiptail lizards found most commonly in) the very sandy habitat found near King Hill. All three lizard species were quite common in this habitat. Only one individual was caught of each of 4 species: night snake, striped whipsnake, western skink, rubber boa, making it impossible to make generalizations regarding these species.

Elevation
Species found to be widespread were generally found throughout the elevational range of the survey area (Fig. 1). Several species appeared to be relatively restricted in their elevational distribution. For four species (horned lizard, leopard lizard, whiptail lizard, and longnose snake), this is because they are found only at relatively low elevation. However, the four species that were found only at higher elevation (skink, whipsnake, night snake, and rubber boa) have been recorded in lower elevations, and it is likely that any pattern found in the present study is due solely to the low number of captures of these species.

DISCUSSION

Before we discuss our results, it is important to note the following caveat: our study was but a snapshot, taken during a two month period during one summer. If our study had been done earlier or later in the year, we might have seen substantially different patterns of abundance. For example, western skinks are much more abundant earlier in the year and essentially disappear by mid-May, and western rattlesnakes are common near hibernacula in the spring and fall but disperse during the summer. Furthermore, our study was done during the summer of the sixth year of a drought. Many individual amphibians may have skipped reproduction for that year. If so, we wouldn't have found them at the wetland sites we visited. Also, many of the sites we visited that were dry during summer of 1992 may be viable breeding sites in wetter years. Therefore, any patterns we have seen may simply be a function of the season and year in which our study was performed. We now discuss our results relative to the objectives of this study.

Objective 1: To provide information, from censuses and from prior collections, on the presence and status of various species of reptiles and amphibians in the study area.

Surprisingly few historical records exist for the survey area, and captures during the present survey will produce the first museum records in that area for seven of the species captured and the first museum records for Elmore County for three species. Our study established that the 15 captured species do exist within the survey area. However, our captures produced no real surprises (such as range extensions).

The species can be divided into the following groupings, based on how widespread they are and their density at sites at which they were captured. A species is labeled as "widespread" if it occupied a wide range of habitats and/or elevations, but was labeled as "limited distribution" if it tended to be found only in one or a few habitat types and/or in a limited elevational range. Abundance is classified by the following labels: abundant, common, uncommon, and rare. Note that (i) constructing such dichotomies necessarily misrepresents the relatively continuous variation among species in their distributions and abundances, (ii) placement is based largely on subjective judgement, (iii) species may be more or less widespread and more or less abundant in other parts of their range, (iv) labels are based on what we found in the present survey, and might be different in studies conducted in different seasons or years, (v) our labels reflect our perception of the abundance, and some species (e.g. gopher snakes) may receive a higher abundance rating because of their wide ranging movements and other species (e.g. rattlesnakes) may receive a lower abundance rating because of their tendency to stay in a limited area.

Widespread and abundant or common where found:

1. Racer. Found in a wide variety of habitats, and often more than one found.
2. Gopher snake. Found in a wide range of habitats (especially roads) and although less common near wetlands several individuals were often found in an area.
3. Pacific treefrog. Found in a variety of wetland habitats, and typically many individuals seen at sites where found.

Widespread but uncommon or rare where found:

1. Western toad. Found in several different wetland situations, although limited to canyons, but locally seldom more than 1 or 2 adults found.
2. Side-blotched lizard. Found in a number of habitats, but typically few seen.
3. Western rattlesnake. Found in a number of habitats, but never more than one individual seen.

Limited distribution but locally abundant or common.

1. Western Fence Lizard. Typically limited to riparian habitats, but often several individuals seen in an area.
2. Sagebrush lizard. Locally common in higher elevation areas.
3. Desert horned lizard. Found only in low elevation sandy habitat near King Hill, but locally common.
4. Longnosed leopard lizard. Found only in low elevation sandy habitat near King Hill, but locally common..
5. Western whiptail lizard. Found only in low elevation sandy habitat near King Hill and one nearby site, but locally common.

Limited distribution and locally uncommon or rare.

1. Long-toed salamander. Found only in a few pools and never more than a few individuals present.
2. Western skink. Only one individual found at one high elevation site.
3. Longnose snake. Found only in low elevation sandy habitat near King Hill, and only two individuals found.
4. Striped whipsnake. Only one individual found at one high elevation site.
5. Night snake. Only one individual found at one high elevation site.
6. Rubber boa. Only one individual found at one high elevation site.
7. W. terrestrial garter snake. Found only associated with wetland habitats, and never more than one individual seen.

Objective 2: To provide an initial indication of the habitat variables important to each species.

A study of this type (determining whether presence/absence of a species is associated with various categories of habitat variables) can provide only a superficial indication of which habitat variables might be important. With that caveat in mind we make the following generalities:

1. A number of reptile species are limited to the very sandy habitat located near King Hill. Such hotspots of reptile diversity should be protected, if possible.

2. Wetland areas are of obvious importance to amphibians, which breed in water, but are also apparently important for two reptiles: western fence lizards and western terrestrial garter snakes. The usurpation of springs for cattle tanks and of streams for irrigation can therefore have detrimental effects on a number of species.

3. Canyon habitats and rocky outcrops are of importance to a number of species, probably because these provide hiding places and winter hibernacula.

4. Our analysis was unable to show a negative or positive impact of cattle, but this analysis was limited and should not be taken to show a lack of impact. We can suggest that at least one species, the long-toed salamander, is very likely to be negatively affected by the presence of cattle. First, this species was only found to breed in small ponds at springs or in heavy aquatic vegetation in slow moving streams. Second, in the one instance where adults were found, they were in a cattle exclosure found under heavy duff downslope from a spring. Third, the percolating water of springs provides hibernacula for frogs in Yellowstone National Park (C. Peterson, personal observation), presumably because the frogs can penetrate to substantial depth and be protected from freezing. Amphibians in the Bruneau resource area may do the same thing, although further study is obviously needed. We observed that (i) cattle like to walk in slow moving streams, destroying the vegetation that is apparently necessary for breeding, and (ii) that cattle are attracted to springs and destroy any pools and any nearby vegetation, thereby destroying breeding habitat, habitat for adults, and potential hibernacula. In the one case in which we observed salamander larvae in a spring pool in a heavily grazed area, the spring was located within 30 m of a flowing stream, and therefore did not attract the attention of the cattle. During our survey, we observed several springs that had been severely damaged by cattle and which could be protected with a minimum of effort and these have been noted in SITE NOTES. Note that construction of an exclosure will **not** benefit amphibian populations if

the bulk of the flow from the spring is diverted to a cattle tank. A pool is necessary for breeding, vegetation resulting from downslope flow is necessary for adult hiding places, and the spring itself may function as a hibernaculum.

Objective 3: To give a preliminary indication of the reliability of using National Wetland Inventory maps to predict the presence of amphibians.

There is little indication from this study that NWI maps can provide much help in predicting the presence of amphibians, with two exceptions: salamanders were found exclusively in palustrine systems (but by no means in all palustrine systems) and treefrogs were found more often than expected in permanently flooded regimes. One possible reason for this lack of utility is that the scale on which the maps are drawn is too coarse. Such distinctions as pool vs. run vs. riffle are not recognized. For example, we noticed that the larvae of salamanders and treefrogs tended to be found in pools or very slowly moving streams. Toad larvae were found in slow moving water without vegetation and with a muddy bottom. The NWI maps simply do not recognize these distinctions.

One cautionary note regarding this analysis is in order: 1) The manner in which the sites were chosen for visits was biased: Instead of visiting and censusing all possible wetlands within an area, regardless of their designations, we chose to visit only those that appeared on the land use map. This may have introduced some bias, since presumably only the larger, more persistent water courses show up on the land use map.

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Table 1. Contingency tables showing the association between presence of amphibian species and various features of the environment. Species Codes: AM = Ambystoma macrodactylum, BB = Bufo boreas, PR = Pseudocris regilla.

	Topography		
	CANYON	FLAT	HILLY
species = AM 0 (absent)	26 27.826	12 12.058	26 24.116 (observed) (expected)
1 (present)	4 2.1739	1 0.942	0 1.8841

G-test; df = 2 G = 5.264 P = 0.072

		CANYON	FLAT	HILLY
BB	0	23 26.957	13 11.681	26 23.362
	1	7 3.0435	0 1.3188	0 2.6377

G-test; df = 2 G = 12.703 P = 0.002* (statistically significant)

		CANYON	FLAT	HILLY
PR	0	20 23.043	9 9.9855	24 19.971
	1	10 6.9565	4 3.0145	2 6.029

G-test; df = 2 G = 6.392 P = 0.041*

		Grazing Intensity			
		HEAVY	MODERATE	LIGHT	NONE
AM	0	17 18.551	15 13.913	22 20.406	10 11.13
	1	3 1.4493	0 1.087	0 1.594	2 0.8696

G-test; df = 3 G = 8.153 P = 0.043*

		HEAVY	MODERATE	LIGHT	NONE
BB	0	17 17.971	14 13.478	19 19.768	12 10.783
	1	3 2.029	1 1.5217	3 2.2319	0 1.2174

G-test; df = 3 G = 3.518 P = 0.318

		HEAVY	MODERATE	LIGHT	NONE	
PR	0	15 15.362	12 11.522	15 16.899	11 9.2174	
	1	5 4.6377	3 3.4783	7 5.1014	1 2.7826	16

G-test; df = 3 G = 2.822 P = 0.420

Type of Water Body

		RESERVOI	SPRING	STREAM
AM	0	14 13.176	19 19.765	31 31.059
	1	0 0.8235	2 1.2353	2 1.9412

G-test; df = 2 G = 2.127 P = 0.345

		RESERVOI	SPRING	STREAM	Total
BB	0	13 12.559	21 18.838	27 29.603	61
	1	1 1.4412	0 2.1618	6 3.3971	7

G-test; df = 2 G = 6.586 P = 0.037*

	RESERVOI	SPRING	STREAM	Total
0	9 10.912	20 16.368	24 25.721	53
1	5 3.0882	1 4.6324	9 7.2794	15

G-test; df = 2 G = 6.798 P = 0.033*

Presence of Fish

		NO	PROBABLY	YES	Total
AM	0	46 46.377	6 6.4928	12 11.13	64
	1	4 3.6232	1 0.5072	0 0.8696	5

G-test; df = 2 G = 2.257 P = 0.324

		NO	PROBABLY	YES	Total
BB	0	46 44.928	6 6.2899	10 10.783	62
	1	4 5.0725	1 0.7101	2 1.2174	7

G-test; df = 2 G = 0.867 P = 0.648

		NO	PROBABLY	YES	Total
PR	0	39 38.406	5 5.3768	9 9.2174	53
	1	11 11.594	2 1.6232	3 2.7826	16

G-test; df = 2 G = 0.170 P = 0.918

		Wetlands Map SYSTEM			
		L	P	R	Total
AM	0	6 5.5652	54 54.725	4 3.7101	64
	1	0 0.4348	5 4.2754	0 0.2899	5

G-test; df = 2 G = 1.631 P = 0.443

		L	P	R	Total
BB	0	5 5.3913	54 53.014	3 3.5942	62
	1	1 0.6087	5 5.9855	1 0.4058	7

G-test; df = 2 G = 1.149 P = 0.563

		L	P	R	Total
PR	0	2 4.6087	47 45.319	4 3.0725	53
	1	4 1.3913	12 13.681	0 0.9275	16

G-test; df = 2 G = 7.497 P = 0.024*

Wetlands Map Class

		EM	FO	SB	SS	UB	US	Total
AM	0	19 19.478	1 0.9275	3 2.7826	31 31.536	9 8.3478	1 0.9275	64
	1	2 1.5217	0 0.0725	0 0.2174	3 2.4638	0 0.6522	0 0.0725	5

G-test; df = 5 G = 2.373 P = 0.795

		EM	FO	SB	SS	UB	US	Total
BB	0	19 18.87	1 0.8986	2 2.6957	31 30.551	8 8.087	1 0.8986	62
	1	2 2.1304	0 0.1014	1 0.3043	3 3.4493	1 0.913	0 0.1014	7

G-test; df = 5 G = 1.699 P = 0.889

		EM	FO	SB	SS	UB	US	Total
PR	0	17 16.13	1 0.7681	3 2.3043	27 26.116	5 6.913	0 0.7681	53
	1	4 4.8696	0 0.2319	0 0.6957	7 7.8841	4 2.087	1 0.2319	16

G-test; df = 5 G = 7.343 P = 0.196

Wetlands Map WATER REGIME

		A	AH	B	C	CH	F	FH	H	HH
AM	0	4 0.9275	1 8.3478	8 38.029	37 3.7101	4 0.9275	1 1.8551	2 0.9275	5.5652	
1										
	1	0 0.2899	0 0.0725	1 0.6522	4 2.971	0 0.2899	0 0.0725	0 0.1449	0 0.0725	0 0.4348

G-test; df = 8 G = 3.382 P = 0.908

		A	AH	B	C	CH	F	FH	H	HH
BB	0	4 3.5942	1 0.8986	9 8.087	36 36.841	4 3.5942	0 0.8986	2 1.7971	1 0.8986	5 5.3913
	1	0 0.4058	0 0.1014	0 0.913	5 4.1594	0 0.4058	1 0.1014	0 0.2029	0 0.1014	1 0.6087

G-test; df = 8 G = 9.487 P = 0.303

		A	AH	B	C	CH	F	FH	H	HH
PR	0	3 3.0725	1 0.7681	9 6.913	31 31.493	3 3.0725	1 0.7681	2 1.5362	1 0.7681	2 4.6087
	1	1 0.9275	0 0.2319	0 2.087	10 9.5072	1 0.9275	0 0.2319	0 0.4638	0 0.2319	4 1.3913

G-test; df = 8 G = 12.543 P = 0.129

Wetlands Map WATER REGIME

		A	AH	B	C	F	H
AM	0	4 3.7101	1 0.9275	8 8.3478	41 41.739	3 2.7826	7 6.4928
	1	0 0.2899	0 0.0725	1 0.6522	4 3.2609	0 0.2174	0 0.5072

G-test; df = 5 G = 2.600 P = 0.761

		A	AH	B	C	F	H
BB	0	4 3.5942	1 0.8986	9 8.087	40 40.435	2 2.6957	6 6.2899
	1	0 0.4058	0 0.1014	0 0.913	5 4.5652	1 0.3043	1 0.7101

G-test; df = 5 G = 4.344 P = 0.501

		A	AH	B	C	F	H
PR	0	3 3.0725	1 0.7681	9 6.913	34 34.565	3 2.3043	3 5.3768
	1	1 0.9275	0 0.2319	0 2.087	11 10.435	0 0.6957	4 1.6232

G-test; df = 5 G = 10.620 P = 0.059

Table 2. Contingency tables showing the association of presence of selected reptiles with various habitat measures. Species codes: CC = Coluber constrictor, CV = Crotalis viridis, PM = Pituophis melanoleucus, TE = Thamnophis elegans, SG = Sceloporus graciosus, SO = Sceloporus occidentalis, US = Uta stansburiana. Probabilities are from a likelihood ratio G-test.

Upland vs. Wetland

CC(species)	UP	WET		
(not present) 0	24 23.378	55 55.622	(observed) (expected)	79
(present) 1	5 5.6224	14 13.378		19
Total	29	69		98
G-test	1 df	G = 0.124	P = 0.725	

CV	UP	WET	
0	25 26.041	63 61.959	88
1	4 2.9592	6 7.0408	10
Total	29	69	98
G-test	1 df	G = 0.551	P = 0.458

PM	UP	WET	
0	14 23.673	66 56.327	80
1	15 5.3265	3 12.673	18
Total	29	69	98
G-test	1 df	G =28.627	P = 0.000* (statistically significant)

TE	UP	WET	
0	28 26.633	62 63.367	90
1	1 2.3673	7 5.6327	8
Total	29	69	98
G-test	1 df	G = 1.418	P = 0.234

SG	UP	WET	
0	26	67	93
	27.52	65.48	
1	3	2	5
	1.4796	3.5204	
Total	29	69	98

G-test 1 df G = 2.100 P = 0.147

SO	UP	WET	
0	28	59	87
	25.745	61.255	
1	1	10	11
	3.2551	7.7449	
Total	29	69	98

G-test 1 df G = 3.027 P = 0.082

US	UP	WET	
0	26	66	92
	27.224	64.776	
1	3	3	6
	1.7755	4.2245	
Total	29	69	98

G-test 1 df G = 1.172 P = 0.279

Vegetation

CC	COTTO	GRASS	MIXED	NONE	SAGE	WILLO	
0	2	3	18	9	20	21	73
	1.587	3.1739	20.63	7.1413	16.663	23.804	
1	0	1	8	0	1	9	19
	0.413	0.8261	5.3696	1.8587	4.337	6.1957	
Total	2	4	26	9	21	30	92

G-test 5 df G =12.426 P = 0.029*

CV	COTTO	GRASS	MIXED	NONE	SAGE	WILLO	
0	2	4	20	9	19	28	82
	1.7826	3.5652	23.174	8.0217	18.717	26.739	
1	0	0	6	0	2	2	10
	0.2174	0.4348	2.8261	0.9783	2.2826	3.2609	
Total	2	4	26	9	21	30	92

G-test 5 df G = 7.260 P = 0.202

PM	COTTO	GRASS	MIXED	NONE	SAGE	WILLO	
0	2	2	20	9	20	27	80
	1.7391	3.4783	22.609	7.8261	18.261	26.087	
1	0	2	6	0	1	3	12
	0.2609	0.5217	3.3913	1.1739	2.7391	3.913	
Total	2	4	26	9	21	30	92

G-test 5 df G =10.066 P = 0.073

TE	COTTO	GRASS	MIXED	NONE	SAGE	WILLO	
0	2	4	22	9	21	26	84
	1.8261	3.6522	23.739	8.2174	19.174	27.391	
1	0	0	4	0	0	4	8
	0.1739	0.3478	2.2609	0.7826	1.8261	2.6087	
Total	2	4	26	9	21	30	92

G-test 5 df G = 8.476 P = 0.132

SG	COTTO	GRASS	MIXED	NONE	SAGE	WILLO	
0	2	4	24	9	20	28	87
	1.8913	3.7826	24.587	8.5109	19.859	28.37	
1	0	0	2	0	1	2	5
	0.1087	0.2174	1.413	0.4891	1.1413	1.6304	
Total	2	4	26	9	21	30	92

G-test 5 df G = 2.008 P = 0.848

SO	COTTO	GRASS	MIXED	NONE	SAGE	WILLO	
0	2	4	25	9	19	22	81
	1.7609	3.5217	22.891	7.9239	18.489	26.413	
1	0	0	1	0	2	8	11
	0.2391	0.4783	3.1087	1.0761	2.5109	3.587	
Total	2	4	26	9	21	30	92

G-test 5 df G =10.874 P = 0.054

US	COTTO	GRASS	MIXED	NONE	SAGE	WILLO	
0	2	4	23	9	20	28	86
	1.8696	3.7391	24.304	8.413	19.63	28.043	
1	0	0	3	0	1	2	6
	0.1304	0.2609	1.6957	0.587	1.3696	1.9565	
Total	2	4	26	9	21	30	92

G-test 5 df G = 3.027 P = 0.696

Topography

CC	CANYO	FLAT	HILLY	
0	22	25	27	74
	23.871	20.688	29.441	
1	8	1	10	19
	6.129	5.3118	7.5591	
Total	30	26	37	93

G-test 2 df G = 7.720 P = 0.021*

CV	CANYO	FLAT	HILLY	
0	25	25	33	83
	26.774	23.204	33.022	
1	5	1	4	10
	3.2258	2.7957	3.9785	
Total	30	26	37	93

G-test 2 df G = 2.625 P = 0.269

PM	CANYO	FLAT	HILLY	
0	28	18	33	79
	25.484	22.086	31.43	
1	2	8	4	14
	4.5161	3.914	5.5699	
Total	30	26	37	93

G-test 2 df G = 6.657 P = 0.036*

TE	CANYO	FLAT	HILLY	
0	25	26	35	86
	27.742	24.043	34.215	
1	5	0	2	7
	2.2581	1.957	2.7849	
Total	30	26	37	93

G-test 2 df G = 7.078 P = 0.029*

SG	CANYO	FLAT	HILLY	
0	28	25	35	88
	28.387	24.602	35.011	
1	2	1	2	5
	1.6129	1.3978	1.9892	
Total	30	26	37	93

G-test 2 df G = 0.224 P = 0.894

SO	CANYO	FLAT	HILLY	
0	24	26	32	82
	26.452	22.925	32.624	
1	6	0	5	11
	3.5484	3.0753	4.3763	
Total	30	26	37	93
G-test	2 df	G = 8.277	P = 0.016*	

US	CANYO	FLAT	HILLY	
0	28	26	33	87
	28.065	24.323	34.613	
1	2	0	4	6
	1.9355	1.6774	2.3871	
Total	30	26	37	93
G-test	2 df	G = 4.451	P = 0.108	

Rocky in vicinity?

CC	NO	YES	
0	5	59	64
	5.3976	58.602	
1	2	17	19
	1.6024	17.398	
Total	7	76	83
G-test	1 df	G = 0.133	P = 0.715

CV	NO	YES	
0	7	68	75
	6.3253	68.675	
1	0	8	8
	0.6747	7.3253	
Total	7	76	83
G-test	1 df	G = 1.486	P = 0.223

PM	NO	YES	
0	6	71	77
	6.494	70.506	
1	1	5	6
	0.506	5.494	
Total	7	76	83
G-test	1 df	G = 0.462	P = 0.497

TE	NO	YES	
0	7	69	76
	6.4096	69.59	
1	0	7	7
	0.5904	6.4096	
Total	7	76	83
G-test	1 df	G = 1.291	P = 0.256

SG	NO	YES	
0	6	72	78
	6.5783	71.422	
1	1	4	5
	0.4217	4.5783	
Total	7	76	83
G-test	1 df	G = 0.704	P = 0.402

SO	NO	YES	
0	7	65	72
	6.0723	65.928	
1	0	11	11
	0.9277	10.072	
Total	7	76	83
G-test	1 df	G = 2.086	P = 0.149

US	NO	YES	
0	6	71	77
	6.494	70.506	
1	1	5	6
	0.506	5.494	
Total	7	76	83
G-test	1 df	G = 0.462	P = 0.497

Rocky outcrop in vicinity?

CC	NO	YES	
0	16	50	66
	15.529	50.471	
1	4	15	19
	4.4706	14.529	
Total	20	65	85
G-test	1 df	G = 0.085	P = 0.771

CV	NO	YES	
0	20	56	76
	17.882	58.118	
1	0	9	9
	2.1176	6.8824	
Total	20	65	85

G-test 1 df G = 5.148 P = 0.023*

PM	NO	YES	
0	19	60	79
	18.588	60.412	
1	1	5	6
	1.4118	4.5882	
Total	20	65	85

G-test 1 df G = 0.182 P = 0.670

TE	NO	YES	
0	20	57	77
	18.118	58.882	
1	0	8	8
	1.8824	6.1176	
Total	20	65	85

G-test 1 df G = 4.542 P = 0.033*

SG	NO	YES	
0	20	60	80
	18.824	61.176	
1	0	5	5
	1.1765	3.8235	
Total	20	65	85

G-test 1 df G = 2.777 P = 0.096

SO	NO	YES	
0	20	54	74
	17.412	56.588	
1	0	11	11
	2.5882	8.4118	
Total	20	65	85

G-test 1 df G = 6.389 P = 0.011*

US	NO	YES	
0	19	60	79
	18.588	60.412	
1	1	5	6
	1.4118	4.5882	
Total	20	65	85

G-test 1 df G = 0.182 P = 0.670

Grazing Pressure

CC	HEAVY	MODER	LIGHT	NONE	
0	14	15	26	8	63
	15.556	13.222	22.556	11.667	
1	6	2	3	7	18
	4.4444	3.7778	6.4444	3.3333	
Total	20	17	29	15	81

G-test 3 df G = 9.045 P = 0.029*

CV	HEAVY	MODER	LIGHT	NONE	
0	17	16	27	14	74
	18.272	15.531	26.494	13.704	
1	3	1	2	1	7
	1.7284	1.4691	2.5062	1.2963	
Total	20	17	29	15	81

G-test 3 df G = 1.238 P = 0.744

PM	HEAVY	MODER	LIGHT	NONE	
0	20	16	27	12	75
	18.519	15.741	26.852	13.889	
1	0	1	2	3	6
	1.4815	1.2593	2.1481	1.1111	
Total	20	17	29	15	81

G-test 3 df G = 5.603 P = 0.133

TE	HEAVY	MODER	LIGHT	NONE	
0	17	16	28	13	74
	18.272	15.531	26.494	13.704	
1	3	1	1	2	7
	1.7284	1.4691	2.5062	1.2963	
Total	20	17	29	15	81

G-test 3 df G = 2.662 P = 0.447

SG	HEAVY	MODER	LIGHT	NONE	
0	18	17	28	13	76
	18.765	15.951	27.21	14.074	
1	2	0	1	2	5
	1.2346	1.0494	1.7901	0.9259	
Total	20	17	29	15	81
G-test	3 df	G = 4.052	P = 0.256		

SO	HEAVY	MODER	LIGHT	NONE	
0	18	13	27	12	70
	17.284	14.691	25.062	12.963	
1	2	4	2	3	11
	2.716	2.3086	3.9383	2.037	
Total	20	17	29	15	81
G-test	3 df	G = 3.237	P = 0.357		

US	HEAVY	MODER	LIGHT	NONE	
0	20	14	28	13	75
	18.519	15.741	26.852	13.889	
1	0	3	1	2	6
	1.4815	1.2593	2.1481	1.1111	
Total	20	17	29	15	81
G-test	3 df	G = 6.453	P = 0.092		

SITE NOTES. Refer to quadrangle maps or land use map for relative locations, and to quadrangle maps for a complete list of species found at each site. UTM coordinates are found in an accompanying table.

Site 1 King Hill Creek. Wetland survey and Drift fence. Locations: SW¼ of NE¼ of S 34, T4S, R10E. Wetland designation is PSSC and R3UBH. Elevation 2600 ft. A small portion of this part of King Hill creek goes through BLM land. We visited this spot first on May 15 and several times later. It consists of a good sized stream blocked at one point by a small diversion dam. There were a couple of small oxbow ponds cutoff from the stream. Sparse willows along the stream as well as some larger trees. Water temperature was 17-18°C in the ponds. Light grazing damage. We saw fast moving fish in the stream (trout?) and caught a speckled dace. We caught a garter snake on the rocks of the diversion dam. Also caught away from the stream were a gopher snake and several racers. A 25 ft. drift fence was erected on the bank. No amphibians were seen or caught during the daytime visits, but on May 18 we returned after dark and found several treefrogs calling from the moist bank near the stream.

Site 2. "Sand Hill". Drift fences and 24 minute survey. NW¼ of SE¼ of Sec 3, T5S, R10E. Elevation is 2725 ft. Alongside the road ascending from King Hill Creek toward Blair Trail Reservoir is a very sandy area, consisting of rolling sandy hills with sparse shrubs and occasional gullies. We erected 2-50 ft. long drift fences and conducted several 24-minute censuses. This site held the highest diversity of reptiles of any censused, with long-nosed snakes, racers, gopher snakes, whiptail lizards, horned lizards, leopard lizards, and sideblotched lizards. Because of its diversity, **this site should be protected** from overgrazing or other damage.

Site 3 Little Canyon Creek above "Emigrant Crossing Res.". Wetland survey and Drift fences. Location: NW¼ of SE¼ of S 21, T4S, R10E. Wetland designation PSSC. Elevation 3520 ft. Two miles east of Blair Trail Reservoir is a narrow reservoir on Little Canyon Creek which is unnamed on the maps but which we call "Emigrant Crossing Reservoir". Approximately 1 mile upstream from the dam, there is access to the stream feeding the reservoir, which is protected by a cattle exclosure (although we did see one errant cow). The stream is set in a rocky canyon (30 ft. walls) and is heavily vegetated with willows. The flats above the canyon are vegetated by sagebrush. We erected 2-50 ft. drift fences in the sagebrush flat and one 25 ft. drift fence near the stream. The stream was flowing in May, but had stopped by July. Although we saw no evidence of amphibians during our survey, we caught adult salamanders and treefrogs in our drift fences on the sagebrush flats, indicating that these species travel away from the protection of the riparian habitat. Also caught were racers and gopher snakes.

Site 4. Lower reaches of "Emigrant Crossing Reservoir", the dam, and the outflow into Little Canyon Creek. Wetland survey and drift fence. Location: SE¼ of NE¼ of S 29, T4S, R10E. Wetland designations: PUBHh in the reservoir, PEMC in the area directly below the dam, and PSSC below that. Elevation: 3500 ft. Fishermen were seen at the reservoir; presumably it contains fish. We caught treefrogs in the reeds of the lake and under some debris on the dam. The water flows down a rocky stretch and enters a lush swampy portion with willows and much aquatic vegetation. This portion remained without grazing for much of the season. Just upstream from the road crossing (which is 200 meters downstream from the dam) is a fence that forms the upstream border of a heavily grazed portion of the stream. In the ungrazed portion, we found a rattlesnake, an adult toad, and several treefrogs. In the aquatic vegetation,

we found larvae of treefrogs and salamanders. In the grazed portion we erected a 25 ft. drift fence, and found there a toad, several treefrogs and their larvae, and caught an adult salamander in the drift fence. Because the salamanders appeared to only breed in the aquatic vegetation of the ungrazed portion, **we recommend complete protection** from grazing for this portion.

Site 5. "Windtunnel" Location: SW¼ of S 29, T3S, R10E. Drift fence and 24-minute census. Elevation: 4680. Located above the bluff overlooking the valley. The habitat is rocky outcrops with gravelly soil in between, with occasional shrubs. We placed two-50 ft. drift fences approximately 100 m west of the road, and captured a night snake, a gopher snake, several racers, a western skink, a sideblotched lizard, and a sagebrush lizard.

Site 6. Little Canyon Creek near site 5. Wetland survey and drift fence. Location: NW¼ of NW¼ of S 29, T3S, R10E. Wetland designation PSSC. Elevation 4640. Habitat is a rocky canyon with willow, cottonwood, rose, and dogwood, often so thick as to be impenetrable. Creek is fast-moving with occasional pools. little aquatic vegetation. Water temp 14.7 °C. Very small fish with parr markings seen. No grazing damage. We erected one 25ft. drift fence at the site and caught a racer and a fence lizard.

Site 7. Upper Little Canyon Creek "Crow valley". Drift fences, wetland survey, 24-minute censuses. Location: SW¼ of SE¼ of S 1, T3S, R9E. Wetland Designation: PSSC Elevation: 5380.(Site 15 is ca. 1 km SSE). This is a narrow valley with a rocky canyon (20-30 ft high) near the stream. Cottonwood, aspen, rose, willow, alder near stream; fairly dense sagebrush in upland areas. Heavy grazing pressure near stream. In the flat area between the road and the stream, we installed 2-50 ft. long drift fences. One 25 ft. fence was installed near the stream. We caught or saw several fence lizards, several sagebrush lizards, and one rubber boa.

Site 8. Prairie Road. Drift fence. Location. NE¼ of NW¼ of S 9, T2S, R8E. Wetland designation: PEMC. Elevation 4960 ft. Rolling hills with a wonderfully diverse shrub flora. Installed one 25 ft. drift fence in the creekbed, which was dry, located down the hill from site 9. Caught one racer. No evidence of grazing.

Site 9. Prairie Road. (up hill from site 8). Drift fences. Location: NW¼ of NW¼ of S 9, T2S, R8E Elevation 5000 ft. Rolling hills with a diverse shrub flora. Installed 2-50 ft. drift fences on the top of a knoll near road. Caught several sagebrush lizards, several racers, and a striped whipsnake.

Site 10. "Tollgate" site, Drift fences and 24-minute censuses. Location: SE¼ of NE¼ of S 15, T2S, R7E. Elevation: 4600. Rolling hills of mixed shrubs. Gravelly soil. Established two-50 ft. drift fences on knoll above road. Caught or saw many racers, several gopher snakes, several sideblotched lizards, and one fence lizard. Little evidence of grazing.

Site 11. Rattlesnake spring and Upper Rattlesnake Creek. Wetland survey, drift fence. Location: SE¼ of NW¼ of S 31, T2s, R8E Wetland designation: PSSC Elevation: 4000 ft. Steep hills with rock outcrops. Willows around stream, sparse sagebrush away from stream. The 1 km segment from the fence to the spring is heavily grazed, with much trampling and lots of feces in the water. The stream crosses a fence and parallels the road for several hundred meters on BLM land; this segment is ungrazed and is a nearly impenetrable thicket of willows

and other brush. A pair of racers was sighted here. On the W side of the road is a segment of stream that is ungrazed and which was burned within the last few years, and which contains much secondary successional vegetation. No amphibians were found during our initial survey; none were heard during later nighttime listening. A 25 ft. drift fence was installed between the cattle fence and the road near the stream. Several racers were captured.

Site 12. "Substation". Drift fences, wetland survey, and 24-minute censuses. Located behind the electrical substation at rattlesnake creek. Location: NE¼ of SE¼ of S 9, T3S, R7E to SW¼ OF SE¼ of S. 9, T3S, R7E. Wetland designation: PSSC. Elevation: 3400. Relatively flat sagebrush covered upland bisected by a 20-30 ft deep rocky canyon containing rattlesnake creek. The creek is a series of pools with a bit of flow between them. Water is murky, indicating that there is substantial grazing upstream. Upstream portion of canyon bottom is protected by an exclosure. Here, there are willows and thick grass and other annual vegetation. Little aquatic vegetation. Downstream portion is very heavily grazed: the vegetation is reduced to near nothing and ground heavily packed. No amphibians were found or later heard during night call censuses. In the rocks of the exclosure, found one rattlesnake and several racers. We placed 2-50 ft. drift fences on the flat above the canyon and 2-25 ft. drift fences on the canyon floor, one in the grazed area and one in the ungrazed area. We captured a few racers in the upland and one in the ungrazed area. One garter snake was sighted in the ungrazed area.

Site 13. Twin deer springs and Deer Creek. Wetland survey and 24 minute census. Location: NE¼ of NW¼ of S 28, T3S, R10E. Visited 2 July. Wetland designations: Twin deer springs: PEMC, dry streambed between springs and rock draw: R4SBA, spring at rocky draw in cliff: PEMB, streambed through rock draw down to road: PSSC. Elevation: 5080 Access via a dirt road that parallels to the east by 1 mi. Little Canyon Creek. Ascending from the road, we went through a steep-V shaped draw with mixed shrub vegetation. The stream was completely dry here. At the top of this is a steep sided rocky draw that had a trickle with pools to 1x2 m in size. This area is inaccessible to cattle. A spring seeps from the N side of this canyon, creating soggy ground. The vegetation in the canyon is oppressive, with many willows and lots of downed wood. No amphibians were found in this area. Water temperature 9.1°. Above this canyon is a rolling area with many rock outcrops, vegetated by mixed shrubs. We followed the dry streambed towards Twin Deer springs, and performed several 24-minute censuses, which yielded sideblotched lizards and western fence lizards. A rattlesnake was seen as well. Twin deer springs is heavily impacted by cattle. One spring has been usurped for a cattle tank; the other has no flowing seepage, but the seep has been stomped and the surrounding grass has been cut short. **This second spring is a good candidate for protection**, although the water flow was minimal. No amphibians.

Site 14. East of Blair Creek Reservoir. 24 minute census. Location: NE¼ of S 30 T4S R10E. Visited 8 July, Elevation: 3472 ft. Sagebrush flats. A 24 minute census yielded a sagebrush lizard.

Site. 15 Upper Little Canyon Creek, "Crow Valley", about 1 km upstream from Site 7. Wetland census. Location: NW¼ of SW¼ of S. 7, T3S, R10E. Wetland designation PSSC, although the spring does not appear on the map. Visited: 3 June, Elevation: 5150 ft. See site 7 for overall description. Interesting about this site is the presence of a spring, located to the east of the stream but within the canyon. In the area are buttercups, nettles, Mimulus, and currants. In the

spring we found the larvae of long-toed salamanders. The area is heavily grazed. **This spring would be a good candidate for protection**, although it could be argued that the salamanders are doing fine without it.

Site 16. On Danskin Road. Road sighting and wetland survey. Locations: Road sighting: SE¼ of NW¼ of S 10 T1S R6E. Wetland survey: SE¼ of NE¼ of S 10 T1S R6E. Visited: 13 May. Elevation: 4760 ft. Wetland designations: PEMC, PEMA, and RRSBA. A live rattlesnake was sighted on the road, in an area of steep rocky hills and mixed shrubs. Spring and creek were both dry, but at the spring was a patch of reeds and rushes.

Site 17. On Danskin road. Road sighting. Location: NE¼ SE¼ S4, T2S, R6E. Visited: 13 May. Elevation: 3520. A dead rattlesnake was found on the road.

Sites 18, 19, 20, 21. Road kills along Bennett road. All Gopher snakes. Locations: NE¼ of SE¼ of S 10 T4S R7E, NE¼ of NE¼ of S 18 T4S R8E, SW¼ of SW¼ of S 12 T4S R7E, SW¼ of S 11 T4S R7E. Elevation: 3200. Surrounding habitat: sparse sagebrush, cheat grass, sandy.

Site 22. Prairie Road. Road sighting. Location: SE¼ of NW ¼ of S 5 T2S R8E. Visited: 4 June. Elevation: 4980 ft. Live rattlesnake found on road. Surrounding: hilly, with some rock outcrops, sagebrush and grass.

Site 23. On dirt rd. off of Prairie Road. Road sighting: Location NW¼ of SW¼ of S 13 T1S R7E. Visited: 4 June 1992. Elevation: 4950 ft. Live rattlesnake found on road. Surrounding habitat: hilly, mostly grass, some sagebrush.

Site 24. Bennett Road. Road sighting. Location: NE¼ of NW¼ of S 17 T4S R8E. Visited: 16 June. Elevation: 3200. Dead gopher snake found in road.

Site 25. Little Canyon Creek road, 3 mi NE of Blair Creek reservoir. Road sighting. Locations: SW¼ of SE¼ of S 5 T4S R10E. Visited: 22 June. Elevation: 4050 ft. Habitat: relatively flat sagebrush/cheatgrass vegetation with rocky outcrops nearby. Found rattlesnake dead in road.

Site 26. Spring 1/2 mi N of Tollgate. Wetland survey. Location: NW¼ of NW¼ of S13, T2S, R7E. Visited: 20 May. Wetland designation: PSSC Elevation: 4800. Walked through private land to spring. Found Fence Lizard in sagebrush habitat along road. The spring has been completely usurped for use by Tollgate's human inhabitants. The spring has been bulldozed and a pipe installed; the pipe then supplies a large tank which then feeds a line to Tollgate. **Overflow from the tank could be used somehow to provide water for wildlife or for native wetland vegetation.**

Site 27. Cold Springs Creek, near the confluence of E and W forks, and nearby springs. Wetland Survey. Visited 5 June. Locations and wetland designations: Cold Springs Creek: nw¼ of se¼ of S23 T3S R9E, PSSC and R4SBF, Elev. 4000-4200 ft. Two springs (call A and B)¼ up hill due E of confluence: NE¼ OF NW¼ OF S26 T3S R9E PEMC, Elev. 4120 ft. Springs (call C and D) 0.7-.8 mi NE of confluence, up valley wall to E of creek an NW¼ of SW¼ of S23 T3S R9E, PSSB, Elev. 4400 ft. Spring 1.0 mi NNE of confluence, up valley wall to E of creek (call D) NW¼ OF SE¼ OF NE¼ S23 T3S R9E. Elevation: 4400. Cold Springs Creek: Both forks with

numerous cottonwoods and willows. Gravel/cobble bottom. Some open areas. Several hundred Western Toad larvae were found in a portion of the stream about half a mile up the E fork from the confluence in an area with sparse shrub vegetation and no aquatic vegetation. Stream was flowing through this area, although larvae were found in relatively slow areas. Water temperature 12.5° C. A fence lizard and a sideblotched lizard were seen in nearby upland areas. We surveyed from the confluence up the W fork about 1/2 mile and up the E fork about a mile. Springs A and B: Reached by climbing directly up valley side to the E of the confluence. In a draw was a seep, with muddy substrate and little standing water. Willows and other trees with some gaps surrounded the streambed. Moderate livestock damage. To the N about 50 m on the hillside overlooking this stream is a seep that made wet an area about 5 m wide and 30 m long, with some small pools. Vegetation is wild rose, with rushes and grasses in the wet area. Mostly open. Livestock damage is heavy: the spring is totally destroyed, with footprints all over, and destroyed vegetation. **This one should be protected.** Springs C and D: Both are dry. Spring C is surrounded by several shrub species; a sideblotched lizard was found in the rocks nearby. Spring D has a number of cottonwoods and various species of shrubs. Spring E: trickling brook, with 3-5 nice pools, some shaded, some in open, in a rocky canyon. Water 7.8° C. Generally very shrubby; nearly impassible. Looks like great place for treefrogs and salamanders, but nothing found.

Site 28 Road along Canyon Creek. Road sighting. Location:SW¼ of NE¼ of S23 of T2S, R6E. Visited 19 May, Elevation: 3500 ft. Live Gopher snake on road.

Site 29. Road near Long Tom Reservoir Dam. Road sighting: NW¼ of NW¼ of S1 T2S R7E. Visited: 20 MAY. Elev.: 4400 ft. Racer on road. Diverse shrub community in rolling area with lots of rock outcrops.

Site 30. Headwaters of Syrup Creek, 1/2 mile E of Cottonwood springs. Wetland Survey. Location: SE¼ of SE¼ of S 9, T1S, R7E Visited: 4 June Wetland designation: PEMC. Elevation: 4750 ft. 100 m of seep, flowing a bit through pools up to 2x2 m in size. Lots of nice aquatic vegetation; A number of large, well-spaced willows. Light cattle damage. Found Treefrog larvae in one pool 8.5° C, and two fence lizards on willows or on rocks. **Possible site for protection.**

Site 31. Soles Rest Creek. Wetland Survey. Location: SE¼ of NE¼ of S 25, T1N, R5E. Visited 13 May. Wetland designations: PEMC and PSSC. Elevation: 4130 ft. Access from Mayfield road is on private land and is blocked by a locked gate 1/2 mile from road. We gained access to BLM portion of creek by driving in on road about 3/4 mi N of creek and walking to the above location. Stream is intermittent: running in some portions and not in others. Lots of shrubs and willows with plenty of good duff. Looks promising for treefrogs or salamanders but none found. Find dead headless racer near stream, and one fence lizard in nearby gully. Cattle damage intermittent as well.

Site 32. Spring. Wetland Survey. Location: SW¼ of S 27, T1S R6E. Elevation: 3640. Wetland designation: PEMB. Visited May 13 and June 2. One spring usurped for cattle tank. Four other springs were each relatively beautiful on first visit, with standing water up to 1 square meter and several inches deep. Water temp 18.7 °C. Area of 100x30 m with nice rushes and grass vegetation. Surrounding vegetation is degraded grassland. A racer was caught in grassland near spring. No amphibians were captured on this visit but it looks very promising. Little

evidence of cattle on first visit. Second visit (June 2) discover that the springs have been completely trampled and denuded by cattle. Most of the damage is at the actual spring, even though there is plenty of water at the water tank. **Excellent candidate for fencing.**

Site 33. Morrow reservoir. Wetland Survey. Location: S12 of T5S R9E. Elevation 2813. Wetland designations: L1UBHh, PEMCh, PFOCh. Visited may 13, 1992. Surrounding habitat is sagebrush scrub with rocky slopes. A number of large trees are near the reservoir. No aquatic vegetation. Reservoir was rather low, with a wide strip of mud before the water. Found 4 western toads and 1 treefrog under a 2x2 ft. plywood piece on sandy, muddy substrate 40 ft. from the water.

Site 34. Cedar Spring. Wetland Survey. Location: SE¼ of SW¼ of S34 T4S R10E. Visited 15 May. Wetland designations: PSSC and PEMC. Gully though sagebrush scrub area. At lower end is a cattle tank that is completely dry. Higher up is a thicket of various shrub species and a couple of cedars. There was a seep going though a couple of puddles, largest was 1/2 m x 1/2 m. Water temp 13.5-15 °C. Area around cattle tank destroyed by cattle; area in thicket shows little damage. No amphibians found, but a whiptail lizard was found under a rock in the area near the cattle tank.

Site 35. Canyon Creek. Wetland Survey. Location: SW¼ of S 25, T2S, R6E. Visited: 18 May. Wetland designations: PSSA and PSSC. Elevation: 3340 ft. Canyon of 100 ft. or so. Water generally fast moving. Lots of mature willows and other perennials. Found several strings of toad eggs in a non-moving oxbow pool. Found an adult toad under a willow. Found two racers and a sagebrush lizard in rocks of canyon. Heavily hammered by cattle, with lots of tracks along creek. Heard one treefrog on a May 19 night visit.

Site 36. "Salamander" Spring. Wetland Survey. Location: NE¼ of NE¼ S. 7, T2S, R7E. Visited in late March 1992 with Jim Clark, and later on 18 May. Wetland designation: PEMB Elevation: 4120. Exclosure approx 75 m square. Consists of two springs about 20 m apart, each with soccer ball-sized rocks that form a basin about 1 m across. Only the N spring had water on either visit. A seep flows down the hillside from the spring, creating a strip of heavy grass/reed/mimulus vegetation with a few roses to the bottom of the exclosure. On first visit, found perhaps 40 salamander eggs adhering to the bottom of rocks in the water or floating free in the water. Second visit, found 6 or so larvae in spring and 4 adults in duff of vegetation. Later visit at night revealed no frogs calling. Water in pool 14.6 °C.

Site 37 Canyon Creek (another portion). Wetland Survey. Location NW¼ of S12, T2S, R6E. Visited: 18 May. Wetland Designation: PSSC. Elevation: 3600. Canyon of 100 ft or so, with nicely flowing stream. Little aquatic vegetation, but plenty of willows. Found an adult toad and a garter snake near stream, and a rattlesnake in willows. Nothing heard during a nighttime survey. Cattle damage light.

Site 38. Mountain Home Reservoir and outflow. Wetland Survey. Location: SW¼ of SE¼ of S 18 T3S R7E. Wetland designations: Reservoir: L2UBFh and PEMC; outflow: PEMC. Visited 19 May. Elevation 3260. Reservoir is a potentially good habitat with many big rocks that could act as hiding places. Many were turned and nothing found. Later night visit on 3 June revealed no calls. Outflow is a small stream: found one treefrog near stream.

Site 39. Lower Little Canyon Creek. Wetland Survey. Location: SW¼ of NW¼ of S 8 T5S R10E. Visited 26 May. Wetland designation: PSSA. Elevation: 2900 ft. Drainage ditch with rock/sand substrate is 6" deep and 2' across is very clear, slow flowing, with little vegetation. Creek has pools and little rapids, sand and rocks with some large boulders. Some aquatic vegetation with Willows, sagebrush, and poison ivy nearby. Found treefrog larvae in both the ditch and the creek. Some livestock damage, mostly in the ditch.

Site 40. Long Tom Creek. Wetland Survey. NE¼ of S 2 T2S R7E. Visited: 20 May. Wetland designation: PSSC. Elevation: 4360 ft. Stream has a fairly gentle slope but a substantial flow. Intermittent vegetation along stream, cottonwoods, willows, roses. Substantial aquatic vegetation in slower parts of stream. Surveyed the 1 km downstream from dam. Found many small trout but no amphibians. Caught two racers and two gopher snakes in canyon. Water temp 15.3 °C. Minimal livestock damage.

Site 41. Alkali Creek. Wetland Survey. Location: SW¼ of NE¼ of S 13 T4S R9E. Visited 26 May and 3 June Wetland designation: PEMC. Elevation: 3500. Several ponds and slow moving stream with lots of rushes and sedges, small willows. Caught treefrog and toad larvae in water, and two adult toads in rushes near pond. Treefrogs heard calling night of May 19.

Site 42. Hot Springs Creek Reservoir. Wetland survey. Location: SW¼ of SW¼ of S 34 T3S R8E. Visited: 2 June. Wetland designation: L1UBHh. Elevation: 3346. Reservoir is very low, perhaps 1 m deep. Lots of algal mats and some wide-leafed vegetation emerging. Water temps: 27°C at surface in an algal mat, 22°C at 10 cm deep. At the West edge (the edge from which the wind is coming) of the lake find 5 adult and 5 larval treefrogs. Visit June 3 at night: hear 10-20 treefrogs calling.

Site 43. Bennett Creek. Wetland Survey. SW ¼ of S 24 T3S R8E. Visited 2 June. Wetland Designation: PSSC. Elevation: 3580. Walked about 1/2 mile from dirt road. Rocky canyon, heavy vegetation near stream, with cottonwoods, willows, and dogwood. Stream is a babbling brook with rocky substrate and occasional pools. Found treefrog tadpoles in a substantial pool with aquatic vegetation. Water temp: 26°C.

Site 44. Syrup Creek. Wetland Survey. Location: NW¼ of SE¼ of S.7, T1S, R7E. Visited: 4 June. Wetland designation: PSSC. Elevation: 4200. We surveyed about 50 m of unenclosed area and about 400 m of enclosed area. Small stream 1-2 ft. across, and 2" to 18" deep. There was some aquatic vegetation of algal mats, duck weed and grasses, and lots of willows near the stream. No amphibians found. Within the enclosure is a nice boggy place. Found a young garter snake in the boggy area. Light grazing outside enclosure. Water temperatures: 14.8 surface, 12.6 at 10 cm.

Site 45. West Fork of King Hill Creek. Wetland Survey. Location: SW¼ of S 15 T3S R10E. Visited: 2 July. Wetland Designation: PSSC. Elevation: 5000. 3-4 feet wide. Low to moderate flow with gravel and occasional mud substrate. Lots of big willows, as well as dogwood, current, roses, etc. Find very small fish present. Moderate to heavy cattle damage, with trails and broken banks. Found no amphibians, but found 3 fence lizards in trees near stream.

Site 46. Springs near Latty Hot Springs. Wetland Survey. Location: NW¼ of S 31 T3S R10E. Visited: 7 July. Wetland designation: PSSC. Elevation: 4200. Two springs on side of hill.

Ground saturated from both springs but no flowing water. Some grass and sedges, willows, and rose. Heavy livestock damage. One racer found. No amphibians found. **Potential site for protection.**

Site 47. Near jct. of Mayfield and Danskin roads. Road sighting. Found 2 June. Location: NW¼ Sec21 T1S R6E. Elevation: 3710. Gopher snake found in road. Surrounding habitat: flat and grassy with occasional sagebrush.

Site 48. Road to Camas. Road Sighting. SW¼ of NE¼ of S 11 T2S R9E. Found 12 June. Elevation: 5800. Found garter snake in road. Grassy meadow on one side, rabbitbrush and sagebrush on slopes on other.

Site 49. Blair Creek Reservoir. Wetland survey. Location: NE¼ of S 30 T4S R10E. Visited 15 May. Wetland designations: L1UBHh and L2USCh. Elevation: 3472. Little aquatic vegetation, no nearby shrubs and trees. Turned rocks and poked around but found nothing. On May 18, visited at night and treefrogs were heard.

Sites 50. Road from King Hill to Emmigrant Crossing. Road Sighting: SW¼ of SW¼ of S 3 T4S R10E. Visited: 20 July. Elevation: 2825. Sight gopher snake on road when ascending from site 2. Steep slopes with mixed shrub vegetation.

Sites 51, 52, 53. Lower Bennett Road sightings. Locations: SW¼ NW¼ of S 14 T5S, R9E, 13 May; NE¼ of SE¼ of S 15 of T 5 S R 9, 18 May; SW¼ of SE¼ of S 14 of T5S R9E, 15 May. Elevations all approximately 3150 ft. All gopher snakes.

Site 54. Bennett Road. 24 minute census. Location: NW¼ of SW¼ of S15 T4S R8E. Visited: June 10. Elevation: 3240 ft. Sagebrush and rabbit brush. Generally flat. Nothing found.

Site 55. Bennett road and Alkali road. 24-minute census. Location: SE¼ of NE¼ of S18 T4S R10E. Visited: June 12. Elevation: 3586. Sagebrush flats with low rock outcrops. Nothing found.

Site 56. John Hoffman Reservoir. Wetland Survey. Location: S½ of S 2 of T3S R9E. Wetland designations: PUBHh, PEMCh, and PEMC. Elevation: 3600 ft. Reservoir and stream are completely dry. We didn't get out of the vehicle.

Site 57. Prince Albert Spring. SW¼ of S 25 T3S R9E. Visited 7 July. Wetland designation: PEMC. Elevation: 4291. Six inches to two feet across, and up to 6 inches deep. Sedges, rushes, grasses are the aquatic vegetation. Nothing found. Half a mile down stream from spring is a cattle trough, where there is especially heavy cattle damage. **Possible candidate for protection.**

Site 58. Spring near Long Tom Reservoir. Wetland Survey. Location: NE¼ of S 1 T2S R7E. Visited May 20. Wetland designation: PSSC. Elevation: 4360. Lots of cottonwoods but completely dry. Nothing found. Heavy usage by cattle. **Possible candidate for protection.**

Site 59. Spring near Syrup Creek. Wetland Survey. Location: SE¼ of NE¼ of S12, T1S, R6E. Visited: 4 June. Wetland designations: PSSC and PSSB. Elevation: 4600. Watercourse is

completely dry. No riparian vegetation found.

Site 60. Unnamed reservoir. Wetland Survey. Location: NE¼ of S33 T1S R6E. Visited May 13, Wetland designations: PEMAh and PEMFh. Elevation 3640. Reservoir completely dry. We didn't leave vehicle.

Site 61. Small reservoir near Baseline and Mayfield rds. Location: NE¼ of NE¼ of S 11 T1S R5E. Visited 12 May Wetland designations: PUBFh Elevation: 3700. Reservoir is enclosed. Very thick vegetation. Nothing found. Completely dry.

Site 62. Spring near Baseline and Mayfield Roads. Wetland Survey. Location: SW¼ of SW¼ of S 1 T1S R5E. Visited: 12 May. Wetland designations: PEMA and PEMB. Elevation: 3700. Spring with a bit of seeping water at top. Lots of reeds, with a few willows. Lots of Microtus runways. Nothing found. **Good candidate for protection.**

Site 63. Lonetree spring. Wetland Survey. Location: NE¼ of SW¼ of S32 of T3S R9E. Visited 7 July. Wetland designation: PSSB and PEMB. Elevation: 3540. Dry, with some rushes and grasses. One large cottonwood and some smaller ones. Enclosure protects from cattle. Nothing found.

Table 3. UTM coordinates for locations censused during summer 1992. Locations 55-63 are not included as no animals were captured there.

Site	UTM Easterling	UTM Northerling	Location
1	642.3424	4765.987	1/4 SW of 1/4 NE of S. 34, T4S, R10E
2	642.4806	4763.956	1/4 NW 1/4 SE, Sec 3, T5S, R10E
3	641.0658	4768.686	1/4 NW 1/4 SE, Sec 21, T4S, R10E
4	639.6829	4767.242	1/4 SE of 1/4 NE of S. 29, T4S, R10E
5	638.2406	4776.25	1/4 SW Sec 29, T3S, R10E
6	638.5464	4777.449	1/4 NW 1/4 NW, Sec 29, T3S, R10E
7	635.9826	4782.485	1/4 SW 1/4 SE, Sec 1, T3S, R9E
8	620.8238	4791.632	1/4 NE 1/4 NW, Sec 9, T2S, R8E
9	620.531	4791.354	1/4 NW 1/4 NW, Sec 9, T2S, R8E
10	613.6578	4789.664	1/4 SE 1/4 NE, Sec 15, T2S, R7E
11	617.532	4784.718	1/4 SE 1/4 NW, Sec 31, T2s, R8E
12	612.2051	4781.188	1/4 NE 1/4 SE Sec 9, T3S, R7E
13	640.4249	4777.542	1/4 NE 1/4 NW Sec 28, T3s, R10E
14	637.9302	4767.872	1/4 NE S 30 T4S R10E
15	636.5649	4781.452	1/4 NW of 1/4 SW of S. 7, T3S, R10E
16	602.8479	4800.561	1/4 SE 1/4 NW Sec 10 T1S R6E
17	602.3747	4792.23	1/4 NE 1/4 SE Sec4, T2S, R6E
18	613.8376	4771.184	1/4 NE 1/4 SE, Sec 10, T4S, R7E
19	618.771	4770.674	1/4 NE 1/4 NE Sec 18 T4S, R8E
20	615.9305	4771.01	1/4 SW 1/4 SW sec 12 T4S R7E
21	614.4559	4771.087	1/4 SW Sec 11 T4S R7E
22	619.1014	4792.828	1/4 SE NW Sec 5 T2S R8E
23	615.694	4798.731	1/4 NW 1/4 SW Sec 13 T1S R7E
24	619.5269	4770.579	1/4 NE 1/4 NW Sec 17 T4S R8E
25	639.3009	4772.984	1/4 SW 1/4 SE Sec 5 T4S R10E
26	615.6317	4789.874	1/4 NW of 1/4 NW of S. 13, T 2 S, R 7 E
27	633.9622	4777.983	nw1/4 of se1/4 of S23 T3S R9E
28	605.3597	4787.886	SW 1/4 of NE 1/4 of S. 23 of T 2 S, R 6E
29	615.5343	4793.121	1/4 NW of 1/4 NW of S. 1, T2S, R7E
30	611.8803	4799.991	1/4 SE of 1/4 SE of S. 9, T1S, R7E
31	596.8391	4804.964	1/4 SE of 1/4 NE of S. 25, T1N, R5E
32	602.7237	4795.234	1/4 SW of S. 27, T1S, R6E
33	635.4342	4762.272	Sec. 12 of T5S, R9E (Morrow Reservoir)
34	642.1538	4765.076	1/4 SE of 1/4 SW of S. 34, T4S, R10E
35	606.2809	4785.647	1/4 SW of S. 25, T2S, R6E
36	608.7443	4791.316	1/4 NE of 1/4 NE S. 7, T2S, R7E
37	606.2822	4791.22	1/4 NW of S.12, T2S, R6E
38	608.7562	4778.894	SW1/4 of SE1/4 of S. 18, T3S, R7E
39	639.1808	4763.02	1/4 SW of 1/4 NW of S. 8, T5S, R10E
40	615.113	4793.089	1/4 NE of S. 2, T2S, R7E
41	635.8614	4770.889	1/4 SW of 1/4 NE of S.13, T4S, R9E
42	622.6695	4774.609	1/4 SW of 1/4 SW of S. 34, T3S, R8E
43	625.548	4777.844	1/4 Sw of S. 24, T3S, R8E
44	608.2867	4800.157	1/4 NW of 1/4 SE of S.7, T1S, R7E
45	641.5219	4779.517	1/4 SW of S. 15, T3S, R10E
46	636.858	4775.747	1/4 NW of S. 31, T3S, R10E
47	602.0087	4797.146	1/4 NW Sec21 T1S R6E
48	633.9305	4791.386	1/4 SW 1/4 NE Sec 11 T2S R9E
49	637.171	4767.75	1/4 NE of S. 30, T4S, R10E
50	641.8847	4763.693	sw1/4 of sw1/4 of s 3 T4S R10E
51	633.4385	4760.655	1/4 SW 1/4 NW Sec 14 T5S, R9E
52	633.0237	4760.298	NE 1/4 of SE 1/4 of S. 15 of T 5 S, R 9E
53	634.1926	4759.989	SW 1/4 of SE 1/4 of S. 14 of T 5 S, R 9E
54	622.6395	4769.56	NW1/4 of SW1/4 of S15 T4S R8E

Table 4. Locations of specimens captured in our study area (which is the norther portion of Elmore County, ID) and presently preserved in museums.
Museum Codes: ANSP = Acad. Nat. Sci., BSU = Boise State University, CAS = Calif. Acad. Sci., CM = Carnegie Mus., FMNH = Field Museum of Natural Hist., IMNH = Idaho State Univ., MCZ = Harvard, UIM = University of Idaho.

Museum	Cat #	Order	Family	Genus	Species	Easterling	Northerling	Locality	Day	Month	Year	Collector(s)
ANSP	18011	Anura	Ranidae	Rana	pipiens	606.7718	4776.188	Mountain Home	9	August	1910	none
ANSP	18015	Squamata	Iguanidae	Gambelia	wislizeni	606.7718	4776.188	Mountain Home	9	August	1910	none
BSU	66	Squamata	Iguanidae	Sceloporus	graciosus	614.6789	4769.68	T4S R7E S14 NW1/4	1	August	1980	Graham Smith
CAS	55223	Squamata	Viperidae	Crotalus	viridis	590.2115	4780.825	On Oregon Short Line RR, 4 mi S Cleft & 10 mi W Mt Home	18	June	1922	R.P. Erwin
CAS	55224	Squamata	Viperidae	Crotalus	viridis	590.2115	4780.825	On Oregon Short Line RR, 4 mi S Cleft & 10 mi W Mt Home	18	June	1922	R.P. Erwin
CAS	55228	Squamata	Iguanidae	Phrynosoma	platyrhinos	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55229	Squamata	Iguanidae	Phrynosoma	platyrhinos	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55230	Squamata	Iguanidae	Phrynosoma	platyrhinos	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55231	Squamata	Colubridae	Pituophis	melanoleucus	593.3022	4787.711	Vic Cleft	28	August	1922	R.P. Erwin
CAS	55233	Squamata	Viperidae	Crotalus	viridis	593.4399	4781.09	4-6 mi S Cleft	18	July	1922	R.P. Erwin
CAS	55234	Squamata	Iguanidae	Uta	stansburiana	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55235	Squamata	Iguanidae	Uta	stansburiana	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55236	Squamata	Iguanidae	Uta	stansburiana	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55237	Squamata	Iguanidae	Uta	stansburiana	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55238	Squamata	Iguanidae	Uta	stansburiana	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55239	Squamata	Iguanidae	Uta	stansburiana	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55240	Squamata	Iguanidae	Uta	stansburiana	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55241	Squamata	Iguanidae	Uta	stansburiana	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55242	Squamata	Iguanidae	Phrynosome	platyrhinos	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55243	Squamata	Teiidae	Cnemidophorus	tigris	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55244	Squamata	Teiidae	Cnemidophorus	tigris	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	55245	Squamata	Teiidae	Cnemidophorus	tigris	593.4399	4781.09	4 mi S Cleft	18	June	1922	R.P. Erwin
CAS	64185	Squamata	Colubridae	Masticophis	taeniatus	593.3022	4787.711	Vic Cleft	18	June	1923	R.P. Erwin
CAS	64186	Squamata	Iguanidae	Phrynosoma	platyrhinos	593.3022	4787.711	Vic Cleft	18	June	1923	R.P. Erwin
CAS	64187	Squamata	Iguanidae	Phrynosoma	platyrhinos	593.3022	4787.711	Vic Cleft	18	June	1923	R.P. Erwin
CAS	64188	Squamata	Iguanidae	Phrynosome	platyrhinos	593.3022	4787.711	Vic Cleft	18	June	1923	R.P. Erwin
CAS	64189	Squamata	Iguanidae	Phrynosoma	platyrhinos	593.3022	4787.711	Vic Cleft	18	June	1923	R.P. Erwin
CAS	64207	Squamata	Colubridae	Masticophis	taeniatus	593.3022	4787.711	Cleft	20	April	1925	R.P. Erwin
CAS	64208	Squamata	Viperidae	Crotalus	viridis	606.7718	4776.188	Mt Home	13	Jan	1926	R.P. Erwin
CM	4715	Squamata	Iguanidae	Crotaphytus	wislizenii	593.4399	4781.09	4 Mi South of Cleft	25	April	1926	
CM	4733	Squamata	Iguanidae	Sceloporus	graciosus	586.3328	4815.621	Near Mayfield, Blacks Creek				R P
CM	4734	Squamata	Iguanidae	Sceloporus	graciosus	586.3328	4815.621	Near Mayfield, Blacks Creek				R P
CM	4742	Squamata	Colubridae	Pituophis	melanoleucus	593.4399	4781.09	4 Mi S of Cleft	6	May	1923	
FMNH	11233	Squamata	Iguanidae	Sceloporus	graciosus	586.3328	4815.621	North Of Mayfield				
IMNH	1226	Squamata	Colubridae	Coluiuber	constrictor	641.7902	4764.876	Cedar Spring area near Kings Hill Creek; SE1/4 of SW1/4 of S34; R10E T4S	15	May	1992	Dorcas, Munger
IMNH	1262	Anura	Bufonidae	Bufo	boreas	634.9417	4762.187	Morrow reservior, NW 1/4 of S12; R9E T5S	14	May	1992	J.Munger
IMNH	1264	Anura	Bufonidae	Bufo	boreas	639.3919	4767.257	Immigrant crossing of Little Canyon City SE1/4 of NE1/4 of S29; R10E T4S	15	May	1992	J.Munger
IMNH	1270	Squamata	Teiidae	Cnemidophorus	tigris	639.3919	4767.257	Cedar Spring near Kings Hill Creek, SE1/4 of SW1/4 of S34; R10E T4S	15	May	1992	Munger, Dorcas
IMNH	1271	Anura	Hylidae	Pseudacris	regilla	634.9417	4762.187	Morrow reservior; NW1/4 of S12; R9E T5S	14	May	1992	Munger
IMNH	1272	Anura	Hylidae	Pseudacris	regilla	639.3919	4767.257	Immigrant crossing of Little Canyon City SE1/4 of NE1/4 of S29; R10E T4S	15	May	1992	Munger,Dorcas
IMNH	1304	Anura	Hylidae	Pseudacris	regilla	639.3919	4767.257	Immigrant crossing of Little Canyon City SE1/4 of NE1/4 of S29; R10E T4S	15	May	1992	Munger,Dorcas
IMNH	1305	Caudata	Ambystomatidae	Ambystoma	macrodactylum	639.3919	4767.257	Immigrant crossing of Little Canyon City SE1/4 of NE1/4 of S29; R10E T4S	15	May	1992	Munger,Dorcas
IMNH	1329	Squamata	Viperidae	Crotalus	viridis	639.3919	4767.257	Immigrant crossing of Little Canyon City SE1/4 of NE1/4 of S29; R10E T4S	15	May	1992	Munger,Dorcas
IMNH	788	Squamata	Iguanidae	Phrynosoma	platyrhinoe	645.3723	4762.82	*Sugar Bowl* Hill, King Hill	22	August	1956	
IMNH	789	Squamata	Iguanidae	Phrynosoma	platyrhinos	645.3723	4762.82	*Sugar Bowl* Hill, King Hill	22	August	1956	
IMNH	840	Squamata	Iguanidae	Uta	stansburiana	645.3723	4762.82	*Sugar Bowl Hill*, King Hill	22	August	1956	
IMNH	841	Squamata	Iguanidae	Uta	stansburiana	645.3723	4762.82	*Sugar Bowl Hill*, King Hill	22	August	1956	
MCZ	18092	Squamata	Iguanidae	Phrynosoma	platyrhinos	593.4399	4781.09	4 m S of Cleft	none	none	none	
UIM	116	Squamata	Iguanidae	Crotaphytus	wislizenli	583.619	4775.844	15 miles W of Mountain Home; Grandview Rd.	15	July	1955	P. Dumas
UIM	124	Squamata	Iguanidae	Sceloporus	occidentalis	625.3724	4801.735	edge of Anderson Dam	22	Septemb	1961	Corbit
UIM	166	Squamata	Iguanidae	Phrynosoma	platyrhinos	646.1966	4754.687	5 miles S of King Hill	07	May	1958	anonymous
UIM	312	Squamata	Iguanidae	Sceloporus	graciosus	614.6789	4769.68	6.5 miles SE of Mountain Home (T45, R7E, sec 14)	17	June	1980	G. Smith
UIM	63	Squamata	Colubridae	Coluber	constrictor	583.619	4775.844	Mountain Home	21	May	1960	C. Corbit

Table 5. Locations and characteristics of all segments sampled.

Site	Segment	Locality Description	Locality Name	Wetland Designation	Elev.	Vegetation	Topo.	Rocky?	Rocky Outcrop?	Grazed?	Water course	Status	FISH? Fish?
1	1	1/4 SW of 1/4 NE of S. 34, T4S, R10E	King Hill Ck.	P SS C	2600	willow	hilly	yes	yes	moderate	stream	flow	trout
1	2	1/4 SW of 1/4 NE of S. 34, T4S, R10E	King Hill Ck.	R3 UB H	2600	willow	hilly	yes	yes	moderate	stream	flow	trout
2	1	1/4 NW 1/4 SE, Sec 3, T5S, R10E	Sand Hill	X	2725	mix	hilly	no	no	light			
3	1	1/4 NW 1/4 SE, Sec 21, T4S, R10E	Little Canyon Ck.	P SS C	3520	willow	canyon	yes	yes	none	stream	flow	probable
3	1	1/4 NW 1/4 SE, Sec 21, T4S, R10E	Little Canyon Ck.	X	3520	sagebrush	flat	yes	yes	moderate			probable
4	1	1/4 SE of 1/4 NE of S. 29, T4S, R10E	Imm. Xing reservoir	P UB Hh	3500	mix	canyon	yes	yes	heavy	reservoir	pool	yes
	2	1/4 SE of 1/4 NE of S. 29, T4S, R10E	Imm. Xing ungrazed	P SS C	3500	mix	canyon	yes	yes	heavy	stream	flow	not seen
	3	1/4 SE of 1/4 NE of S. 29, T4S, R10E	Imm. Xing ungrazed	P EM C	3500	mix	canyon	yes	yes	heavy	stream	flow	not seen
	4	1/4 SE of 1/4 NE of S. 29, T4S, R10E	Imm. Xing grazed	P SS C	3500	mix	canyon	yes	yes	heavy	stream	flow	not seen
5	1	1/4 SW Sec 29, T3S, R10E	Wind Tunnel	X	4680	mix	hilly	yes	yes	none			
6	1	1/4 NW 1/4 NW, Sec 29, T3S, R10E	Little Canyon Ck.	P SS C	4640	willow	canyon	yes	yes	light	stream	flow	Yes
7	1	1/4 SW 1/4 SE, Sec 1, T3S, R9E	Goodman Flats	P SS C	5380	Willow	canyon	yes	yes	moderate	stream	flow	not seen
8	1	1/4 NE 1/4 NW, Sec 9, T2S, R8E	Prairie Road	P EM C	4960	mixed	hilly	no	no	none	stream	Dry	No
9	1	1/4 NW 1/4 NW, Sec 9, T2S, R8E	Prairie Road	X	5000	mixed	hilly	yes	yes	none			
10	1	1/4 SE 1/4 NE, Sec 15, T2S, R7E	Tollgate Drift fence	X	4600	mix	hilly	yes	yes	none			
11	1	1/4 SE 1/4 NW, Sec 31, T2s, R8E	Rattlesnake Spring	P SS B	4000	willow	hilly	yes	yes	heavy	spring	flow	No
	2	1/4 SE 1/4 NW, Sec 31, T2s, R8E	Upper Rattlesnake Ck Graz	P SS C	4000	willow	hilly	yes	yes	heavy	stream	flow	No
	3	1/4 SE 1/4 NW, Sec 31, T2s, R8E	Upper Rattlesnake Ck. ung	P SS C	4000	willow	hilly	yes	yes	none	stream	flow	No
12	1	1/4 NE 1/4 SE Sec 9, T3S, R7E	Rattlesnake Ck. exclosure	P SS C	3400	Willow	canyon	yes	yes	none	stream	pool	not seen
12	2	SW 1/4 OF SE 1/4 of S. 9, T3S, R7E	Rattlesnake Ck. Grazed	P SS C	3360	willow	canyon	yes	yes	heavy	stream	pool	not seen
13	1	1/4 NE 1/4 NW Sec 28, T3s, R10E	Twin Deer Springs	P EM C	5080	sage	hilly	yes	yes	heavy	spring	usurped	No
	2	1/4 NE 1/4 NW Sec 28, T3s, R10E	Deer creek	R4 SB A	5080	sage	hilly	yes	yes	moderate	stream	Dry	No
	3	1/4 NE 1/4 NW Sec 28, T3s, R10E	Deer Creek	P EM B	5080	sage	hilly	yes	yes	none	stream	Wet	No
	4	1/4 NE 1/4 NW Sec 28, T3s, R10E	Deer Creek	P SS C	5080	sage	hilly	yes	yes	light	stream	Dry	No
14	1	1/4 NE S 30 T4S R10E	Blair Ck Reservoir	X	3472	sage	flat	no	yes	light			
15	1	1/4 NW of 1/4 SW of S. 7, T3S, R10E	Goodman Flat (spring)	P SS C	5150	willow	canyon	yes	yes	heavy	spring	flow	not seen
	2	1/4 NW of 1/4 SW of S. 7, T3S, R10E	Little Canyon Ck	P SS C	5150	willow	canyon	yes	yes	heavy	stream	flow	not seen
16	1	1/4 SE 1/4 NW Sec 10 T1S R6E	Danskin Rd.	X	4760	sage	hilly	yes	yes	light			
	2	1/4 SE 1/4 NE Sec 10 T1S R6E	Danskin Rd. Spring	P EM C	4760	sage	hilly	yes	yes	light	spring	Dry	No
	3	1/4 SE 1/4 NE Sec 10 T1S R6E	Danskin Rd. Spring	P EM A	4760	sage	hilly	yes	yes	light	stream	Dry	No
	4	1/4 SE 1/4 NE Sec 10 T1S R6E	Danskin Rd. Spring	R4 SB A	4760	sage	hilly	yes	yes	light	stream	Dry	No
17		1/4 NE 1/4 SE Sec4, T2S, R6E	Danskin Road	X	3520		flat						
18		1/4 NE 1/4 SE, Sec 10, T4S, R7E	Bennett Rd.	X	3200	sage	flat						
19		1/4 NE 1/4 NE Sec 18 T4S, R8E	Bennett Rd.	X	3200	mix	flat						
20		1/4 SW 1/4 SW sec 12 T4S R7E	Bennett Rd.	X	3200	grass	flat						
21		1/4 SW Sec 11 T4S R7E	Bennett Rd.	X	3200	mix	flat						
22		1/4 SE NW Sec 5 T2S R8E	Prairie Rd.	X	4980	mix	hilly		yes				
23		1/4 NW 1/4 SW Sec 13 T1S R7E	off Prarie Rd.	X	4950	mix	hilly	yes					
24		1/4 NE 1/4 NW Sec 17 T4S R8E	Bennett Rd.	X	3200	mix	flat						
25		1/4 SW 1/4 SE Sec 5 T4S R10E	Little Canyon Ck. Rd	X	4050	mix	flat		yes				
26	1	1/4 NW of 1/4 NW of S. 13, T 2 S, R 7 E	Tollgate Spring	P SS C	4800	sage	canyon	yes	yes	none	spring	usurped	No
27	1	nw1/4 of se1/4 of S23 T3S R9E	Cold Springs Ck	P SS C	4000	willow	canyon	yes	yes	moderate	stream	flow	trout
27	2	nw1/4 of se1/4 of S23 T3S R9E	Cold Springs Ck.	R4 SB F	4000	willow	canyon	yes	yes	moderate	stream	flow	trout
27	3	NE1/4 OF NW1/4 OF S26 T3S R9E	Spring A	P EM C	4120	Mixed	hilly	yes	yes	heavy	spring	flow	No
27	4	NE1/4 OF NW1/4 OF S26 T3S R9E	Spring B	P EM C	4120	Willow	canyon	yes	yes	moderate	spring	flow	No
27	5	NW1/4 OF SE 1/4 OF NE 1/4 S23 T3S R9E	Springs C and D	P SS B	4400	Willow	canyon	yes	yes	none	spring	Dry	No
27	6	nw1/4 of se1/4 of S23 T3S R9E	Spring E	P SS C	4000	willow	canyon	yes	yes	moderate	spring	Dry	No
28	1	SW 1/4 of NE 1/4 of S. 23 of T2S, R6E	Canyon Ck Road	x	3500		flat						
29	1	1/4 NW of 1/4 NW of S. 1, T2S, R7E	Near Long Tom Res.	x	4400	sage	hilly	yes	yes				
30	1	1/4 SE of 1/4 SE of S. 9, T1S, R7E	Headwaters of Syrup Ck.	P EM C	4750	willow	hilly	yes	yes	light	spring	flow	No
31	1	1/4 SE of 1/4 NE of S. 25, T1N, R5E	Soles Rest Ck.	P EM C	4130	willow	hilly	yes	yes	moderate	stream	flow	not seen
31	2	1/4 SE of 1/4 NE of S. 25, T1N, R5E	Soles Rest Ck.	P SS C	4130	willow	hilly	yes	yes	moderate	stream	flow	not seen
32	1	1/4 SW of S. 27, T1S, R6E	Spring	P EM B	3640	grass	flat	yes	no	heavy	spring	flow	No
33	1	Sec. 12 of T5S, R9E (Morrow Reservoir)	Morrow reservoir	L1 UB Hh	2813	none	canyon	yes	yes	light	reservoir	pool	Probable
33	2	Sec. 12 of T5S, R9E (Morrow Reservoir)	Morrow reservoir	P EM Ch	2813	none	canyon	yes	yes	light	reservoir	pool	Probable
33	3	Sec. 12 of T5S, R9E (Morrow Reservoir)	Morrow reservoir	P FO Ch	2813	none	canyon	yes	yes	light	reservoir	pool	Probable
34	1	1/4 SE of 1/4 SW of S. 34, T4S, R10E	Cedar Spring	P SS C	2700	mix	hilly	yes	no	moderate	spring	flow	No
34	2	1/4 SE of 1/4 SW of S. 34, T4S, R10E	Cedar Spring	R4 SB C	2700	TREES	hilly	yes	no	moderate	stream	Dry	no
35	1	1/4 SW of S. 25, T2S, R6E	Canyon Creek	P SS A	3340	willow	canyon	yes	yes	heavy	stream	flow	dace
35	2	1/4 SW of S. 25, T2S, R6E	Canyon Ck	P SS C	3340	willow	canyon	yes	yes	heavy	stream	flow	dace
36	1	1/4 NE of 1/4 NE S. 7, T2S, R7E	Spring	P EM B	4120	grassy	Flat	no	no	none	spring	flow	none
37	1	1/4 NW of S.12, T2S, R6E	Canyon Ck	P SS C	3600	willow	canyon	yes	yes	light	stream	flow	not seen

Table 5 (continued) Locations and characteristics of all segments sampled

Site	Segment	Locality Description	Locality Name	Wetland Designation	Elev.	Vegetation	Topo.	Rocky?	Rocky Outcrop?	Grazed?	Water course	Status	FISH? Fish?
38	1	SW1/4 of SE1/4 of S. 18, T3S, R7E	Mt. Home Res.	L1 UB Hh	3260	none	flat	yes	no	light	reservoir	pool	Probable
38	2	SW1/4 of SE1/4 of S. 18, T3S, R7E	Mt. Home Res.	L2 UB Fh	3260	none	flat	yes	no	light	reservoir	pool	Probable
38	3	SW1/4 of SE1/4 of S. 18, T3S, R7E	Mt. Home Res.	P EM C	3260	none	flat	yes	no	light	reservoir	pool	Probable
38	1	SW1/4 of SE1/4 of S. 18, T3S, R7E	Mt. Home Res. outflow	E EM C	3260	none	flat	yes	no	light	stream	flow	No
39	1	1/4 SW of 1/4 NW of S. 8, T5S, R10E	Little Canyon Ck.	P SS A	2900	mix	canyon	yes	yes	light	stream	flow	not seen
40	1	1/4 NE of S. 2, T2S, R7E	Long Tom Ck.	P SS C	4360	willow	canyon	yes	yes	light	stream	flow	trout
41	1	1/4 SW of 1/4 NE of S.13, T4S, R9E	Alkdali Ck.	P EM C	3500	mix	canyon	yes	yes	light	stream	flow	not seen
42	1	1/4 SW of 1/4 SW of S. 34, T3S, R8E	Hot Springs Ck. Res.	L1 UB Hh	3346	mix	flat	yes	no	light	reservoir	pool	not seen
43		1/4 Sw of S. 24, T3S, R8E	Bennett Ck.	P SS C	3580	willow	canyon	yes	yes	light	stream	flow	not seen
44	1	1/4 NW of 1/4 SE of S.7, T1S, R7E	Syrup Ck. Unenclosed	P SS C	4200	willow	hilly	yes	yes	light	stream	flow	trout
44	2	1/4 NW of 1/4 SE of S.7, T1S, R7E	Syrup Ck. Exclosure	P SS C	4200	willow	hilly	yes	yes	none	stream	flow	trout
45	1	1/4 SW of S. 15, T3S, R10E	Upper King Hill CK.	P SS C	5000	willow	hilly	yes	yes	heavy	stream	flow	Small
46	1	1/4 NW of S. 31, T3S, R10E	Spring near Latty Hot sp.	P SS C	4200	willow	hilly	yes	no	heavy	spring	flow	No
47	1	1/4 NW Sec21 T1S R6E	Jct. Mayfield, Danskin rd	X	3720	grass	flat						
48	1	1/4 SW 1/4 NE Sec 11 T2S R9E	Bennett rd.	X	5800	mix			yes				
49	1	1/4 NE of S. 30, T4S, R10E	Blair Ck. Res	L1 UB Hh	3472	none	flat	yes	yes	moderate	reservoir	pool	not seen
49	2	1/4 NE of S. 30, T4S, R10E	Blair Ck. Res	L2 US Ch	3472	none	flat	yes	yes	moderate	reservoir	pool	not seen
50		sw1/4 of sw1/4 of s 3 T4S R10E	Road	X	2825								
51		1/4 SW 1/4 NW Sec 14 T5S, R9E	Lower Bennett rd.	X	3125								
52		NE 1/4 of SE 1/4 of S15 of T5S R9E	Lower Bennett rd.	X	3125								
53		SW 1/4 of SE 1/4 of S14 of T5S R9E	Lower Bennett rd.	X	3150								
54		NW1/4 of SW1/4 of S15 T4S R8E	Bennett Rd.	X	3240	sage	flat	yes	no	light			
55		SE1/4 of NE1/4 of S18 T4S R10E	Bennett rd. and alkali Rd	X	3586	sage	flat	yes	yes	moderate			
56	1	S1/2 OF S2 OF T3S R9E	John Hoffman Res.	P UB Hh	3600	sage	Flat	yes	no	heavy	reservoir	Dry	No
56	2	S1/2 OF S2 OF T3S R9E	John Hoffman Res.	P EM Ch	3600	sage	Flat	yes	no	heavy	reservoir	Dry	No
56	3	S1/2 OF S2 OF T3S R9E	John Hoffman Res. inflow	P EM C	3600	sage	Flat	yes	no	heavy	stream	Dry	No
57	1	SW1/4 of S 25 T3S R9E	Prince Albert Spring	P EM C	4291	mixed	canyon	yes	yes	light to heavy	spring	flow	No
58	1	NE 1/4 S1 T2S R7E	Spring near Long Tom	P SS C	4360	COTTONWOODS	hilly	yes	yes	heavy	spring	Dry	No
59	1	SE1/4 of NE1/4 of S12 T1S R6E	Spring near Syrup Ck	P SS C	4600	Mixed	canyon	yes	yes	light	spring	Dry	No
	2	SE1/4 of NE1/4 of S12 T1S R6E	Spring near Syrup Ck	P SS B	4600	Mixed	canyon	yes	yes	light	spring	Dry	No
60	1	NE 1/4 OF S33 OF T1S R6E	Reservoir	P EM Ah	3640	sage	Flat	yes	no	moderate	reservoir	Dry	No
	2	NE 1/4 OF S33 OF T1S R6E	Reservoir	P EM Fh	3640	sage	Flat	yes	no	moderate	reservoir	Dry	No
61	1	NE1/4 of NE1/4 of S 11 T1S R5E	Baseline & Mayfield Rds.	P UB Fh	3700	Willow	hilly	no	no	Exclosure	reservoir	Dry	No
62	1	1/4 sw 1/4 sw S 1 T1S R5E	Baseline & Mayfield Rds.	P EM A	3700	sage	hilly	no	no	light	spring	seep	No
	2	1/4 sw 1/4 sw S 1 T1S R5E	Baseline & Mayfield Rds.	P EM B	3700	sage	hilly	no	no	light	spring	seep	No
63	1	NE 1/4 of SW 1/4 of S32 of T3S R9E	Lonetree Spring	P SS B	3540	mixed	hilly	yes	yes	Exclosure	spring	Dry	No
63	2	NE 1/4 of SW 1/4 of S32 of T3S R9E	Lonetree Spring	P EM B	3540	mixed	hilly	yes	yes	Exclosure	spring	Dry	No

Table 6. Summary of locations where species were captured and methods used to survey sites. 1 = species captured at that site or that method used.

Site	Segment	Locality Description	Wetland Designation	Amphibians			Snakes								Lizards						Survey methods					
				A.m.	B.b.	P.r.	C.b.	C.c.	C.v.	H.t.	M.t.	P.m.	R.l.	T.e.	C.t.	E.s.	G.w.	P.p.	S.g.	S.o.	U.s.	wetl	24mi	road	drif	misc	call
1	1	King Hill Ck.	P SS C			1		1				1		1								1			1	1	1
1	2	King Hill Ck.	R3 UB H																			1					1
2	1	Sand Hill	X					1				1	1		1		1	1			1		1	1	1	1	
3	1	Little Canyon Ck.	P SS C	1		1		1				1										1			1		1
3	1	Little Canyon Ck.	X																				1		1		
4	1	Imm. Xing reservoir	P UB Hh			1		1	1					1								1					1
	2	Imm. Xing ungrazed	P SS C			1																1					1
	3	Imm. Xing ungrazed	P EM C	1	1	1		1	1					1								1					1
	4	Imm. Xing grazed	P SS C	1	1	1		1	1					1								1			1		1
5	1	Wind Tunnel	X					1		1		1				1			1		1		1		1		
6	1	Little Canyon Ck.	P SS C					1												1		1	1		1		
7	1	Goodman Flats	P SS C																	1		1	1		1		
8	1	Prairie Road	P EM C					1														1			1		
9	1	Prairie Road	X					1			1								1						1		
10	1	Tollgate Drift fence	X					1				1								1	1		1		1	1	
11	1	Rattlesnake Spring	P SS B																			1					1
	2	Upper Rattlesnk Ck Grzed	P SS C																			1					1
	3	Upper Rattlesnk Ck ungr	P SS C					1														1			1	1	1
12	1	Rattlesnake Ck. exclos.	P SS C					1	1					1						1		1	1		1	1	1
12	2	Rattlesnake Ck. Grazed	P SS C																			1			1	1	
13	1	Twin Deer Springs	P EM C																			1					
	2	Deer creek	R4 SB A						1											1	1	1	1			1	
	3	Deer Creek	P EM B																			1					
	4	Deer Creek	P SS C																			1					
14	1	Blair Ck Reservoir	X																1				1				
15	1	Goodman Flat (spring)	P SS C	1																		1	1				
	2	Little Canyon Ck	P SS C																1	1		1	1				
16	1	Danskin Rd.	X						1															1			
	2	Danskin Rd. Spring	P EM C																			1					
	3	Danskin Rd. Spring	P EM A																			1					
	4	Danskin Rd. Spring	R4 SB A																			1					
17		Danskin Road	X									1												1			
18		Bennett Rd.	X									1												1			
19		Bennett Rd.	X									1												1			
20		Bennett Rd.	X									1												1			
21		Bennett Rd.	X									1												1			
22		Prairie Rd.	X						1															1			
23		off Prarie Rd.	X						1															1			
24		Bennett Rd.	X									1												1			
25		Little Canyon Ck. Rd	X						1															1			
26	1	Tollgate Spring	P SS C																	1		1			1		
27	1	Cold Springs Ck	P SS C																	1		1			1		
27	2	Cold Springs Ck.	R4 SB F		1																1	1			1		
27	3	Spring A	P EM C																			1					
27	4	Spring B	P EM C																			1					
27	5	Springs C and D	P SS B																		1	1			1		
27	6	Spring E	P SS C																								
28	1	Canyon Ck Road	x									1												1			
29	1	Near Long Tom Res.	x					1																1			
30	1	Headwaters of Syrup Ck.	P EM C			1														1		1			1		
31	1	Soles Rest Ck.	P EM C					1														1			1		
31	2	Soles Rest Ck.	P SS C																	1		1			1		
32	1	Spring	P EM B					1														1			1		
33	1	Morrow reservoir	L1 UB Hh		1	1																1					1
33	2	Morrow reservoir	P EM Ch																			1					1
33	3	Morrow reservoir	P FO Ch																			1					
34	1	Cedar Spring	P SS C																			1					
34	2	Cedar Spring	R4 SB C												1							1				1	1
35	1	Canyon Creek	P SS A																			1				1	1
35	2	Canyon Ck	P SS C		1	1		1											1			1					1
36	1	Spring	P EM B	1																		1					

Table 6. (continued) Summary of locations where species were captured and methods used to survey sites. 1 = species captured at that site or that method used

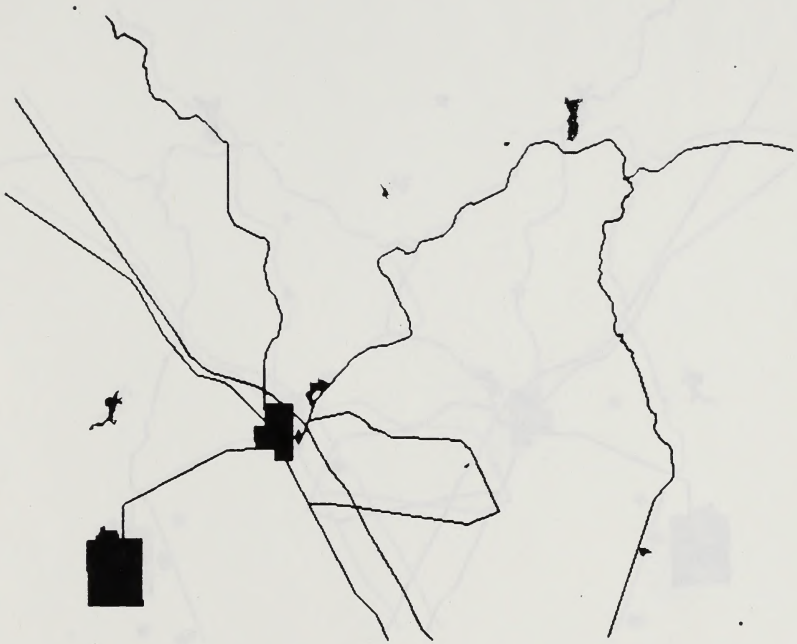
					Amphibians			Snakes							Lizards						Survey methods					
Site	Segment	Locality Description	Wetland Designation		A.m.	B.b.	P.r.	C.b.	C.c.	C.v.	H.t.	M.t.	P.m.	R.l.	T.e.	C.t.	E.s.	G.w.	P.p.	S.g.	S.o.	U.s.	wetl	24mi	road	drif	misc	call
37	1	Canyon Ck	P	SS C		1				1					1								1				1	1
38	1	Mt. Home Res.	L1	UB Hh																			1					1
38	2	Mt. Home Res.	L2	UB Fh																			1					1
38	3	Mt. Home Res.	P	EM C																			1					1
38	1	Mt. Home Res. outflow	E	EM C			1																1					
39	1	Little Canyon Ck.	P	SS A			1																1					
40	1	Long Tom Ck.	P	SS C					1				1										1				1	
41	1	Alkdali Ck.	P	EM C		1	1																1					1
42	1	Hot Springs Ck. Res.	L1	UB Hh			1																1					1
43		Bennett Ck.	P	SS C			1																1					
44	1	Syrup Ck. Unenclosed	P	SS C																			1				1	
44	2	Syrup Ck. Exclosure	P	SS C											1								1				1	
45	1	Upper King Hill CK.	P	SS C																	1		1				1	
46	1	Spring near Latty Hot sp.	P	SS C					1														1				1	
47	1	Jct. Mayfield, Danskin rd	X										1												1			
48	1	Bennett rd.	X												1										1			
49	1	Blair Ck. Res	L1	UB Hh			1																1					1
49	2	Blair Ck. Res	L2	US Ch			1																1					1
50		Road	X										1												1			
51		Lower Bennett rd.	X										1												1			
52		Lower Bennett rd.	X										1												1			
53		Lower Bennett rd.	X										1												1			
54		Bennett Rd.	X																					1				
55		Bennett rd. & alkali Rd	X																					1				
56	1	John Hoffman Res.	P	UB Hh																			1					
56	2	John Hoffman Res.	P	EM Ch																			1					
56	3	John Hoffman Res. inflow	P	EM C																			1					
57	1	Prince Albert Spring	P	EM C																			1					
58	1	Spring near Long Tom	P	SS C																			1					
59	1	Spring near Syrup Ck	P	SS C																			1				1	
	2	Spring near Syrup Ck	P	SS B																								
60	1	Reservoir	P	EM Ah																			1					
	2	Reservoir	P	EM Fh																			1					
61	1	Baseline & Mayfield Rds.	P	UB Fh																			1					
62	1	Baseline & Mayfield Rds.	P	EM A																			1					
	2	Baseline & Mayfield Rds.	P	EM B																			1					
63	1	Lonetree Spring	P	SS B																			1					
63	2	Lonetree Spring	P	EM B																			1					

Eumeces skiltonianus (western skink)

summer 1992 captures (*green*)★
museum records (*red*)♦

Cnemidophorus tigris (western whiptail lizard)

summer 1992 captures (*green*)★
museum records (*red*)♦

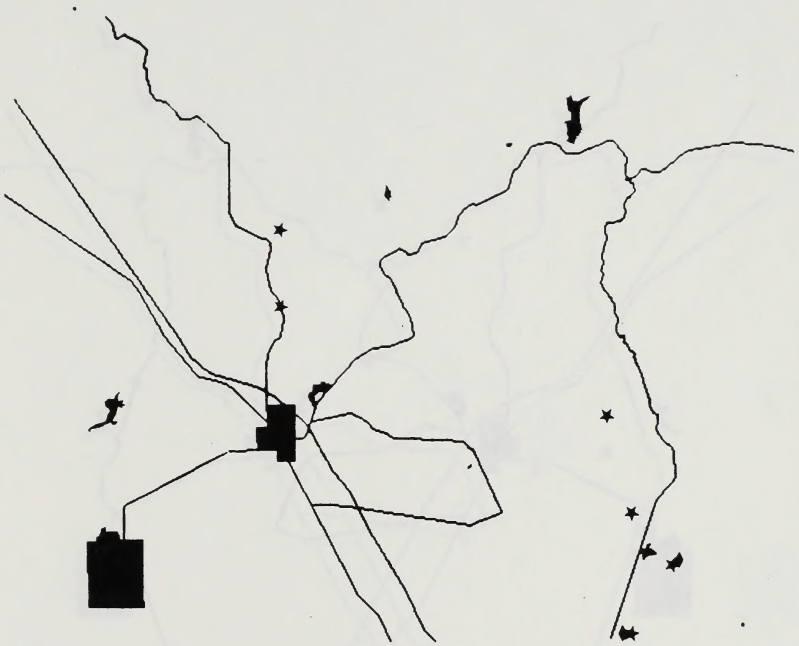


Rana pipiens (leopard frog)

museum records (*red*)♦

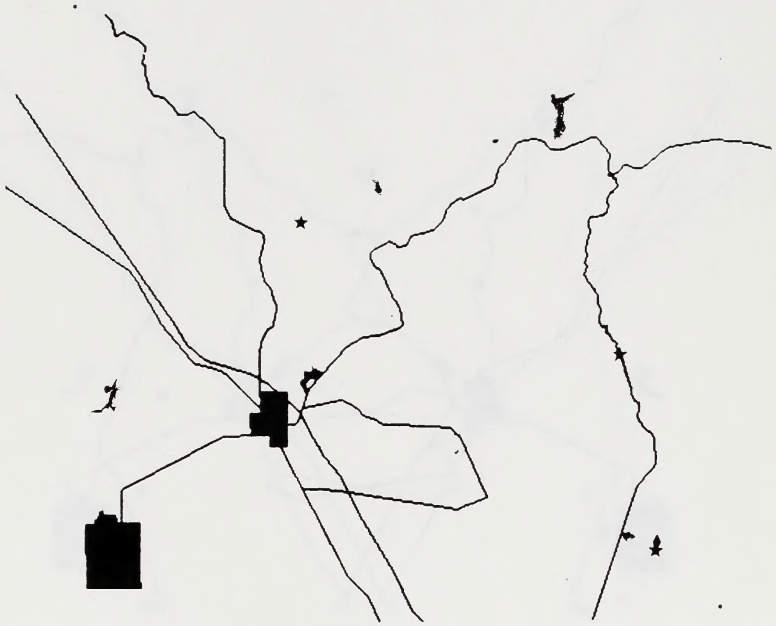
Pseudacris regilla (Pacific treefrog)

summer 1992 captures (*green*)★
museum records (*red*)♦



Bubo boreas (western toad)

summer 1992 captures (*green*) ★
museum records (*red*) ♦



Ambystoma macrodactylum (long-toed salamander)

summer 1992 captures (*green*)★
museum records (*red*)♦

Sites where no species was observed.

summer 1992 captures (*green*)★

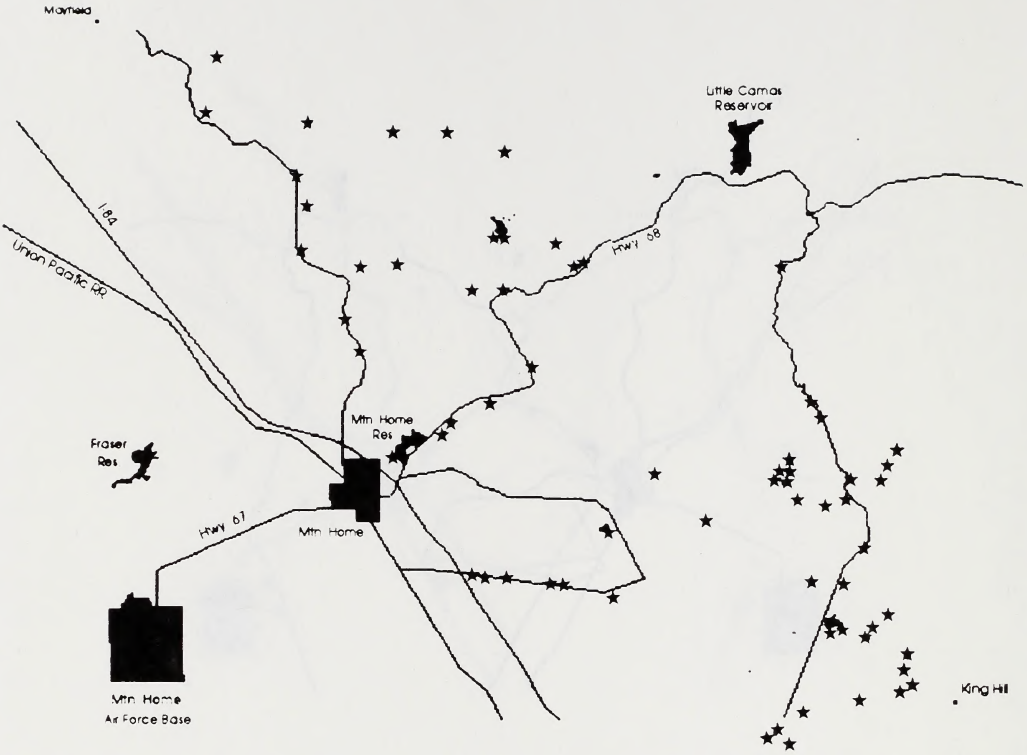


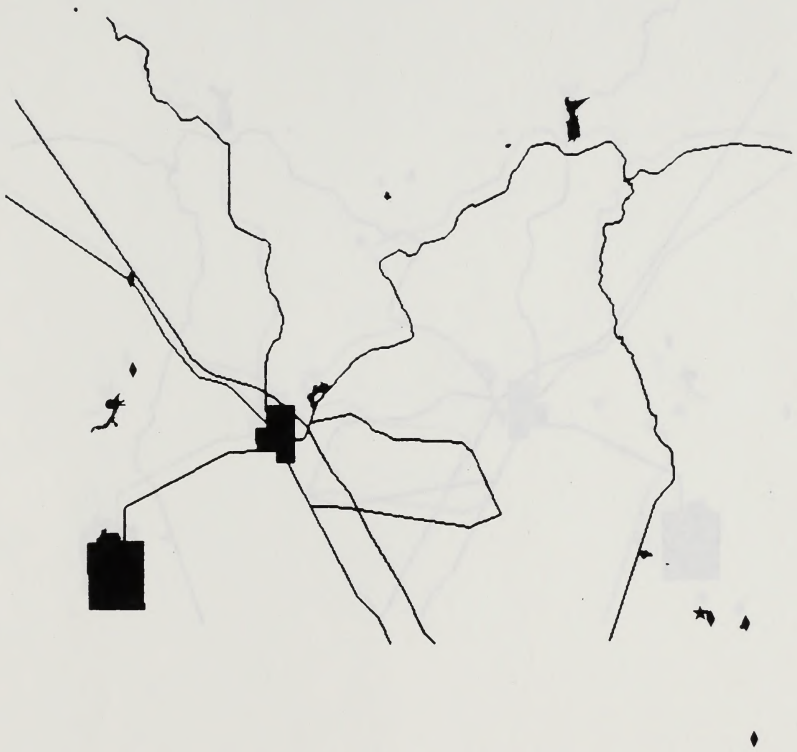
Figure 1. Locations of sites visited during 1992 study.★

Sceloporus occidentalis (western fence lizard)

summer 1992 captures (*green*)★
museum records (*red*)♦

Sceloporus graciosus (sagebrush lizard)

summer 1992 captures (*green*)★
museum records (*red*)♦



Phrynosoma platyrhinos (desert horned lizard)

summer 1992 captures (*green*)★
museum records (*red*)♦

Gambelia wislizenii (longnose leopard lizard)

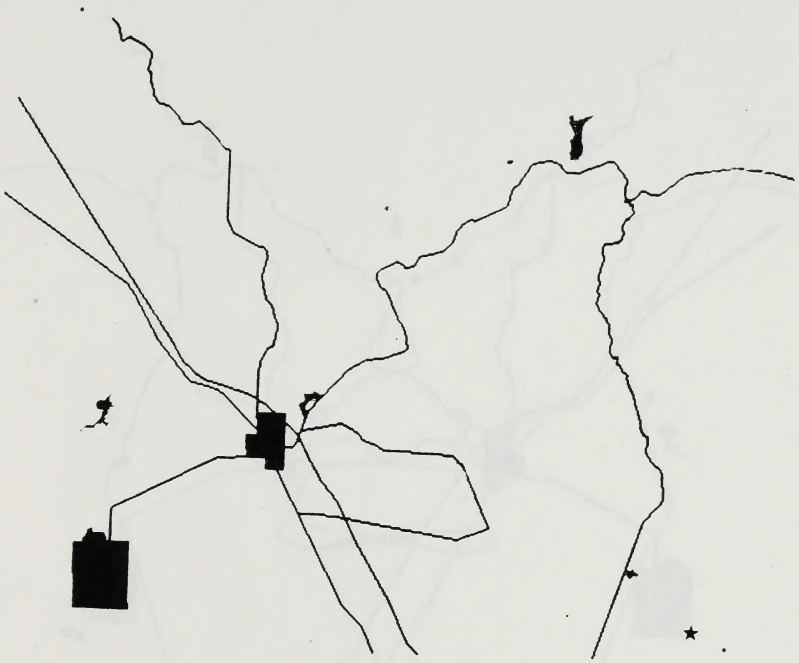
summer 1992 captures (*green*)★
museum records (*red*)♦

Uta stansburiana (side-blotched lizard)

summer 1992 captures (*green*)★
museum records (*red*)♦

Thamnophis elegans (western terrestrial garter snake)

summer 1992 captures (*green*)★
museum records (*red*)♦

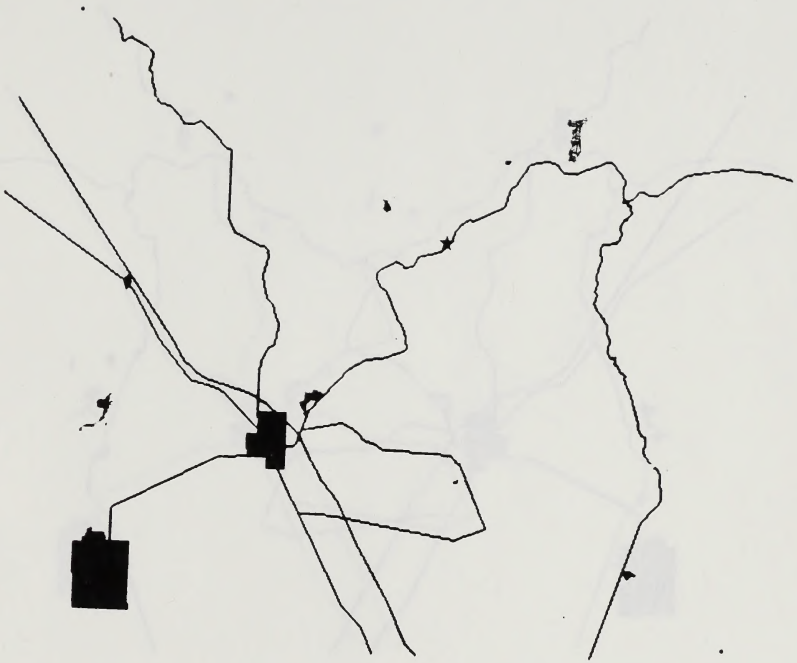


Rhinocheilus lecontei (longnose snake)

summer 1992 captures (*green*)★
museum records (*red*)♦

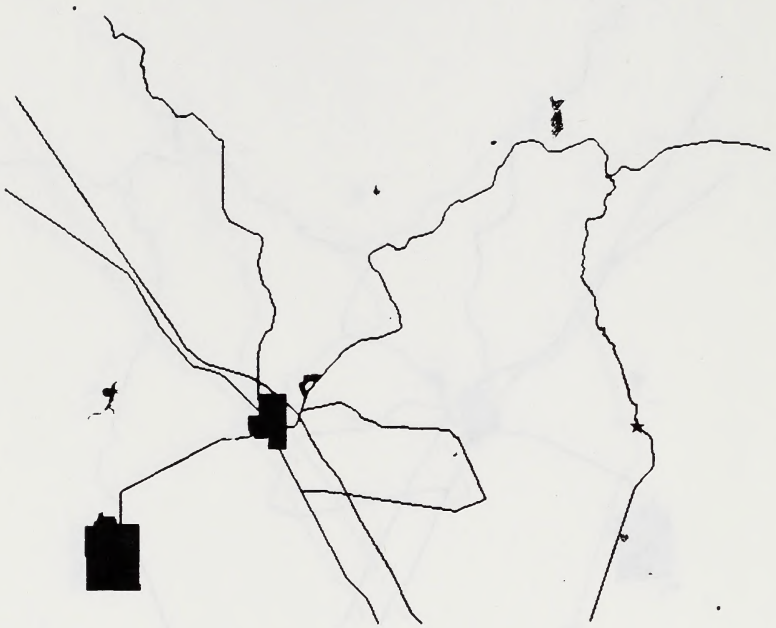
Pituophis melanoleucus (gopher snake)

summer 1992 captures (*green*)★
museum records (*red*)♦



Masticophis taeniatus (striped whipsnake)

summer 1992 captures (*green*)★
museum records (*red*)♦



Hypsiglena torquata (night snake)

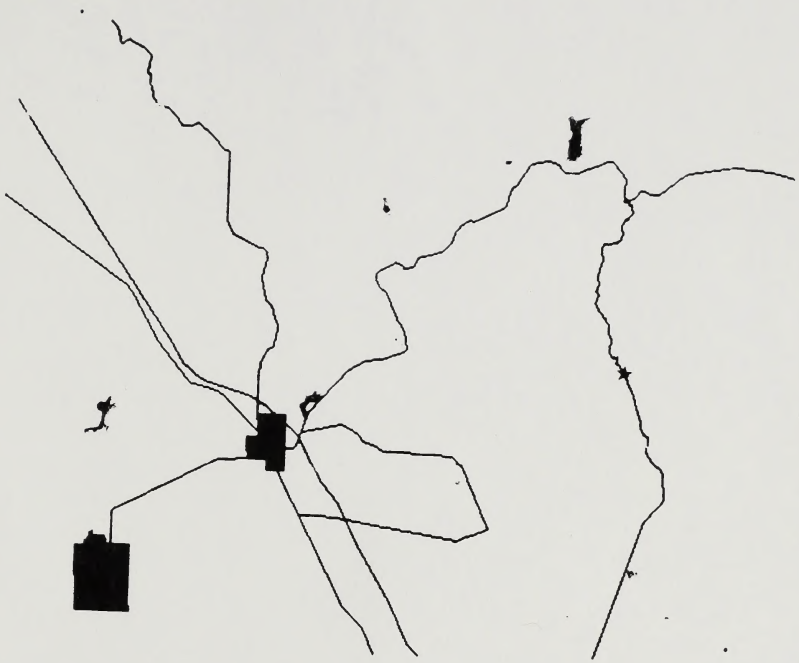
summer 1992 captures (*green*)★
museum records (*red*)♦

Crotalus viridis (western rattlesnake)

summer 1992 captures (*green*)★
museum records (*red*)♦

Coluber constrictor (racer)

summer 1992 captures (*green*)★
museum records (*red*)♦



Charina bottae (rubber boa)

summer 1992 captures (*green*)★
museum records (*red*)♦

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